

THE UNIVERSITY OF HULL

TOWN AND COUNTRY IN SURREY c1800-1870:
A STUDY IN HISTORICAL GEOGRAPHY

being a Thesis submitted for the Degree of
Doctor of Philosophy
in the University of Hull

by

Alan Geoffrey Parton, B.A.

March 1973

ACKNOWLEDGEMENTS

I should like to acknowledge the assistance I have received from a great many people during the preparation of this thesis. First the encouragement of Professor H.K. Wilkinson and the much valued counsel of my supervisor Dr. A. Harris.

Much of the text is based on maps and documents in a number of record offices, I am most grateful for the help given me by the officials at the Public Record Office; the British Museum; the City of London Record Office; the Greater London Council Record Office; the Minet Library; the Guildford Muniment Room; the British Transport Commission Archives and the Central Reference Library, Croydon. I am especially indebted to Miss M. Gollancz and her Senior Assistant Archivist at the Surrey Record Office, Miss L.M. Smith, without whose assistance this work would have been impossible. Major-General E.H. Goulbourn kindly allowed me access to the Goulbourn Estate Records and Mr. J.R. More-Molyneux permitted me to examine the records pertaining to the Losely Estate.

Finally, I must record my thanks to the Department of Geography in the University of Hull and the Lanchester Polytechnic for their technical assistance, my wife for her help in the compilation of the work and my mother who typed the final manuscript.

TABLE OF CONTENTS

Acknowledgements ii
List of plates v
List of tables vi
List of figures vii
Introduction 1

PART I. TOWN AND COUNTRY AT c1800.

Chapter

I. URBAN DEVELOPMENT 6
 Towns in the countryside
 Suburban south London
II. THE RURAL LANDSCAPE 17
 Woodland
 Parkland
 Subdivided arable
 Commons and heaths
 The farms
III. AGRICULTURAL LAND-USE 32
 The Metropolitan Margins
 The Claylands
 The light lands
IV. TOWN AND COUNTRY: SPATIAL CONSIDERATIONS 56
 Distance and transport costs
 Distance and accessibility
 Distance and the agricultural pattern

PART II. THE METROPOLITAN MARGINS 1800-1870

V. URBAN DEVELOPMENT 66
 Population
 The process of suburban advance
 The expanded towns
 Transport and communications

VI.	AGRICULTURAL CHANGE	107
	Changing land values	
	Agricultural land-use	
	PART III. RURAL SURREY 1800-1870	
VII.	POPULATION, TOWNS AND TRANSPORT	134
	A region of stability	
	Towns in the countryside	
	The transport revolution and the towns of Surrey	
	Accessibility and agricultural land-use	
	Transport costs and agricultural land-use	
VIII.	AGRICULTURAL CHANGE	164
	Changing land values	
	Agricultural land-use	
IX.	CONCLUSIONS	200
	APPENDICES	210
I.	Indices of dissimilarity for the towns of Surrey, 1839 and 1870.	
II.	Changes in rent and arrears of rent for the Clayton Estate, 1800-1832.	
III.	Changes in rent and arrears of rent for the Lee Steere Estate, 1848-1870.	
	BIBLIOGRAPHY	233

LIST OF PLATES

Plate		Page
Ia	Stockwell Park Crescent	71
Ib	Hargwyne Street	71
II	Stockwell Green in the early 1870's	76
III	The houses built upon Stockwell Green in 1876 ...	78
IV	Piecemeal housing development facing Stockwell Green	80
V	Cottage dwellings erected c.1840	82
VI	Regency houses along Clapham Road	83

LIST OF TABLES

Table		Page
1	Weald clay farming, 1800	48
2	Stages of areal specialization in the towns of Surrey, 1839 and 1870	87
3	Foot passengers per week using the Thames Bridges, 1811 and 1836	97
4	The incidence of Cattle Plague, December 1865 to March 1866	119
5	The growth of the railway milk trade, 1864-1867..	120
6a	The costs of producing one quarter and of cultivating one acre of wheat, c.1830-1840	157
6b	The costs of producing one quarter and of cultivating one acre of wheat, c.1830-1840	158
7	Variations in crop yields, c.1840.....	184

LIST OF FIGURES

Figure		Page
1:1	Guildford in 1739	7
1:2	Some eighteenth century town plans	8
1:3	Urban development in north Surrey, 1800-1867	12
2:1	Subdivided arable in post 1800 Enclosure Acts ...	18
2:2	Subdivided arable in Great Bookham, 1804	20
2:3	Subdivided arable in Fetcham, 1791	21
2:4	Subdivided arable in Long Ditton in the eighteenth century	22
2:5	Subdivided arable in Battersea, 1787	23
2:6	Commons, heaths and farms, c.1800	26
3:1	Land-use in north Surrey at the end of the eighteenth century	33
3:2	The 1801 Crop Returns for Surrey: cereals.....	35
3:3	The 1801 Crop Returns for Surrey: fodder crops ..	36
3:4	Land-use on an estate in the parishes of Charlwood and Horley, 1801-1803	45
3:5	Crop combination regions, 1801	47
4:1	Input variables and distance at 1800: a diagrammatic representation	57
5:1	Population change in the Metropolitan Margins, 1801-1871	67
5:2	Population in agricultural employment, 1861	69
5:3	Source areas for the immigrant population of intra-Metropolitan Surrey, 1871	73
5:4	Suburban growth in Stockwell, 1800-1870	74
5:5	Commercial activities in the towns of Surrey, 1839 and 1870	85
5:6a	Croydon: functional zones, 1870	88
5:6b	Croydon: distribution of commercial activities, 1870	89
5:7	Stage-coach routes, 1822	93

5:8a	Development of the railway network, 1838-1870	95
5:8b	Development of the railway network, 1838-1870	96
5:9	Transport and communications, 1845	99
5:10	Transport and communications, 1855	100
6:1	Agricultural land rents, 1860	109
6:2	Rent per acre and distance from London, 1860	111
6:3	Crop combinations, c.1840	113
6:4	Crop combinations, 1870	115
6:5	Agricultural land-use, c.1840	117
6:6	Market garden acreage and distance from London, 1840 and 1873	121
6:7	Employment in agriculture, 1831	123
6:8	Employment in agriculture, 1871	125
7:1a	Population change in rural Surrey, 1801-1871	135
7:1b	Population change in rural Surrey, 1801-1871	136
7:2	Source areas for the immigrant population of extra-Metropolitan Surrey, 1871	138
7:3	The pattern of migration, 1861	140
7:4	Population and commercial units for the towns of Surrey, 1841 and 1870/71	143
7:5	The distribution of commercial activities in Farnham, 1870	146
7:6	Carrier journeys per week, 1839	149
7:7	Carrier journeys per week, 1870	150
7:8	Turnpike receipts, 1834-1850	152
7:9	Turnpike receipts, 1834-1850	153
7:10	Turnpike roads in 1852	155
7:11	Livestock enterprises, 1866	159
8:1	Changes in land value, 1806-1815	165
8:2	Changes in land value, 1815-1844	166
8:3	The geographical pattern of Parliamentary Enclosure after 1800	168
8:4	Changes in land value, 1844-1860	170

8:5a	Farm size and soils, 1870	173
8:5b	Farm size and soils, 1870	174
8:5c	Farm size and soils, 1870	175
8:5d	Farm size and soils, 1870	176
8:5e	Farm size and soils, 1870	177
8:5f	Farm size and soils, 1870	178
8:6	Dairy cattle per 100 acres of agricultural land, 1870	186
8:7	Sources of income on a light land farm, 1851-1861.	188
9:1	Employment in agriculture and distance from London, 1831	201
9:2	Employment in agriculture and distance from London, 1871	203
9:3	Diagrammatic pattern of land-use zones in Surrey, c.1800	205
9:4	Diagrammatic pattern of land-use zones in Surrey, c.1870	206

INTRODUCTION

Deprived of its northern half, in the interests of administrative efficiency, suburban Surrey has its advance positions many miles to the south, where it now overlooks the Weald. Here is a largely rural fringe, a remnant of the ancient county, containing, as yet, only outliers of the encroaching 'Wen.' Elsewhere, despite suburban growth, there are considerable acreages of open space protected now by legislation.¹ Once commons or heaths, these wore a more open aspect when grazed as part of the 'old thrift' of a rural community now gone.² Livestock have been replaced by human kind from new suburbia and woody vegetation has returned. Before this latest and seemingly final subjugation, in the face of a "Greater London," successive generations of men have made their evaluation of the economic potential of the county, according to their needs and stage of technical advance.

The continuous nature of geographic change renders the selection of any period of time open to criticism. Nevertheless, the seventy years 1801-1871, possess some unity. After 1800, London's already strong economic grip found new expression in the physical expansion of the Metropolis into Surrey, from its old established bridgehead, Southwark. Hitherto, London had largely grown north of the Thames. Thus, 1800 constituted a watershed in the process of landscape change for the county, and as such is a significant date at which to reconstruct a cross-section through time; the stage upon which the ensuing drama of agricultural and urban change was to be enacted. At the beginning of the nineteenth century, remnants of the "old landscape" of open field survived, to be swept away in succeeding years. The towns stood in symbiotic relationship with the countryside which they had grown to serve. Changes in communications together with the expansion of population, stimulated suburban growth and promoted a new relationship between town and countryside. Many of the developments initiated during these

years, gathered momentum in the later nineteenth and early twentieth centuries. However, by 1870, the agricultural landscape was still extensive while the suburbs had grown sufficiently for interaction between these very different elements to find areal expression. This interaction has been examined for the twentieth century by Wibberley, Pahl and Gasson but similar studies for England, a century earlier, have not been made, despite the fact that this issue was a major theme in von Thunen's "Isolated State" as early as 1826.³ The agricultural pattern he described near to "the town," might be glimpsed in the hinterland of many an incipient city-region, at about 1800. The "isolated state" frequently appears in modern guise, fitted somewhat awkwardly into twentieth century clothes, as writers seek to explain the agricultural pattern in von Thunen's terms.⁴ The absence of detailed accounts comparable with those available for "Tellow," preclude close analysis. But surprisingly few attempts have been made to carry out, even in general terms, the tasks von Thunen set himself in the introduction to part II of his work.

Although major milestones on the road of agricultural improvement had been passed before 1800, the science of agriculture was not static during these years. There has been an increasing awareness, in recent years, of the complexities of the "Agricultural Revolution," as detailed research into national and local archives has proceeded apace, producing a number of regional and systematic studies and at least one re-appraisal of the period 1750-1880.⁵ For the nineteenth century, improvement involved more complex rotations, the use of a greater variety of fertilizers and physical improvement through enclosure and land drainage, all of which contributed to increased productivity. However, improvement was not universally applied. Jones, Grigg and others see nineteenth century agricultural progress in terms of sectoral advance, with the light lands emerging as victors in the, "...fierce but silent contest between the productive lands of England and the unproductive."⁶

Whilst the study of agricultural change in districts of urban growth has tended to be concerned with the present century, work dealing with nineteenth century agriculture has largely concentrated on rural areas containing no major town. However, in nineteenth century Surrey, these two strands - suburban growth and agricultural change (town and country) - cannot be easily separated.⁷

in the Isolated State, however, we have concentrated on the ultimate condition, the object realised. Once this goal has been attained the steady state sets in, and there is no more change, and we shall find regularity and order where in the period of transition so much seemed chaos. But in the real world the steady state cannot exist...

This study begins with the "real world," as it existed in Surrey circa 1800, when the land-use pattern bore some resemblance to von Thunen's economic model. The thesis then seeks to examine subsequent changes in the agricultural landscape and the factors which might explain them. The Home Counties were unique in England, inasmuch as they had one town to supply with agricultural produce, although other districts increasingly vied with them in this task, there was for them no alternative market of any importance. Thus Surrey, containing little suburban development at 1800, is a *perfect* convenient laboratory in which to view the interaction between town and country.

¹The administrative county of Surrey now contains 25,969 acres of common land.

W.G.Hoskins and L.D.Stamp, The Common Lands of England and Wales (London:1963).

²The term used by George Bourne to describe the almost subsistence economy of the squatters on the commons of Surrey in the middle of the nineteenth century.

G.Bourne, The Labourer in the Village (London:1912).

³G.P.Wibberley, Agriculture and Urban Growth (London:1959).

R.H.Pahl, "Urbs in Rure- the Metropolitan fringe in Hertfordshire," London School of Economics, Geographical Papers No.2., (1965).

R.Gasson, "The influence of urbanization on farm ownership and practice," Wye College, Department of Agricultural Economics, Departmental Monograph (1966).

P.Hall, ed., von Thunen's Isolated State (London:1966).

⁴A useful summary of recent assessments of von Thunen's model appears in:

H.F.Gregor, Geography of Agriculture: Themes in Research (New Jersey:1970), pp.57-71.

⁵J.D.Chambers and G.E.Mingay, The Agricultural Revolution, 1740-1880 (London:1966).

D.B.Grigg, The Agricultural Revolution in South Lincolnshire (Cambridge:1966).

A.Harris, The Rural Landscape of the East Riding of Yorkshire, 1750-1850 (Oxford:1961).

⁶Grigg, Agricultural Revolution in South Lincolnshire, p.178.

⁷Hall, Isolated State, p.246.

PART I

TOWN AND COUNTRY AT c.1800

I. URBAN DEVELOPMENT

Towns in the countryside

Suburban south London

II. THE RURAL LANDSCAPE

Woodland

Parkland

Subdivided arable

Commons and heaths

The farms

III. AGRICULTURAL LAND-USE

The Metropolitan Margins

The claylands

The light lands

IV. TOWN AND COUNTRY: SPATIAL CONSIDERATIONS

Distance and transport costs

Distance and accessibility

Distance and the agricultural pattern

CHAPTER I
URBAN DEVELOPMENT

Towns in the countryside.

With few exceptions, Surrey's towns were not near enough to London to attract the attentions of the speculative builder. Small in size and limited in function, their forms bore witness to their gradual growth; both form and function expressed relationships with the countryside rather than with the Metropolis. The characteristic plan centred on a High Street, where most of the buildings and nearly all of the commercial activity were concentrated. In its physical layout Guildford exemplifies features common to all Surrey towns at this time. Examination of the surveyors' drawings for the "First Edition" of the 1" Ordnance Survey Map (1796) and a large scale map of 1739, shows that the layout of the town was little changed during the second half of the eighteenth century.¹ At the end of this period, it could be divided into three morphological zones (Fig.1:1). The central area was effectively demarcated by two back lanes, Upper and Lower Back Sides. This was the most intensively developed part of the town, building having taken place along nearly all of the burgage plot tails, but rarely on all the available land. The form of these extensions suggests a piecemeal development over many years. Beyond this zone lay the other, and areally less significant, sections of the town. Some building had taken place along the principal routes into Guildford, although there was little development back from the building line. Finally there was a spasmodic grouping of individual houses set in their own gardens, most in evidence on the north side of the town. Similar features can be identified in the maps of Reigate in 1785, Haslemere in 1775 and Leatherhead in 1782-3 (Fig.1:2).² There was a morphological unity in the towns of Surrey, the product of evolutionary changes through long periods of time, growth by accretion rather than by large scale development. Nevertheless, the advance guard of suburbia, the large villas of the wealthy, had already begun to appear in Croydon, Epsom and Richmond. Analysis of the information recorded in the Universal British Directory at the end of the

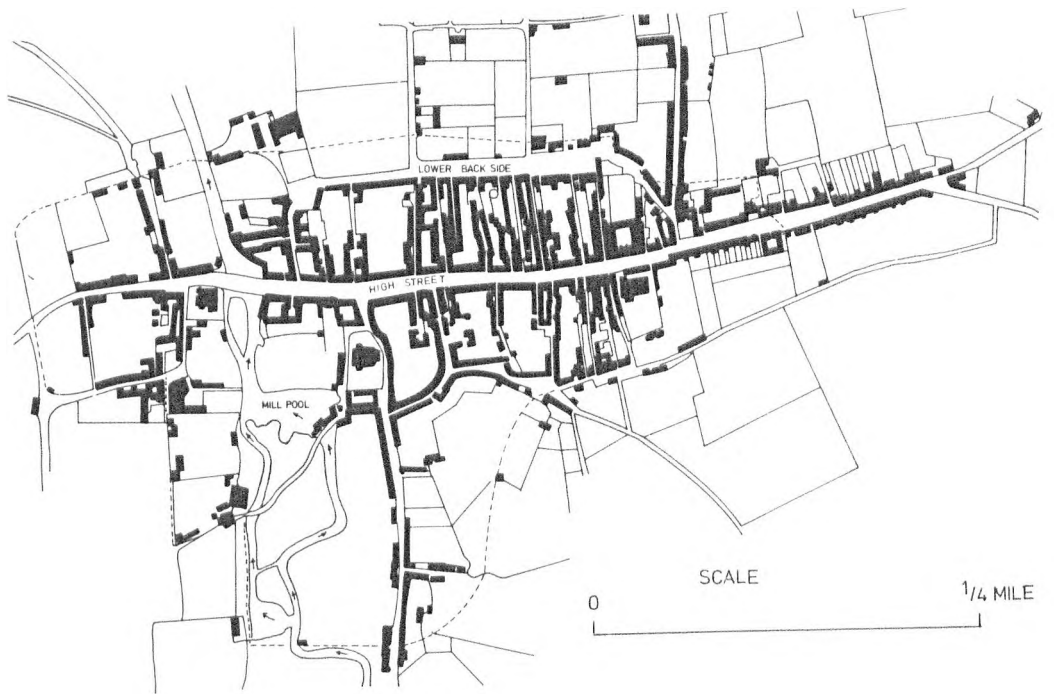
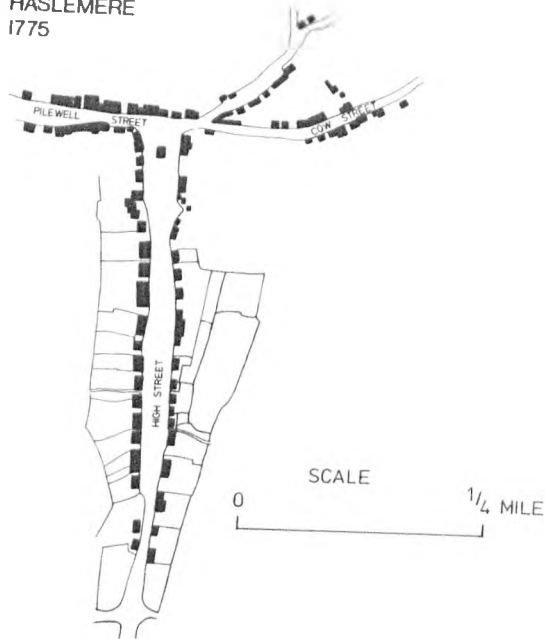


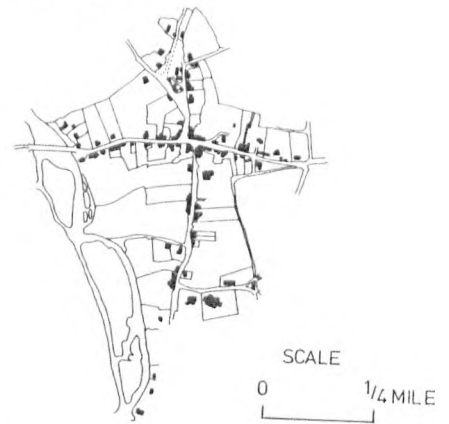
FIG. 1:1 Guildford in 1739.

Source: Bodleian Library. Gough Maps, Surrey 8, 1739.

HASLEMERE
1775



LEATHERHEAD
1782-3



REIGATE
1785

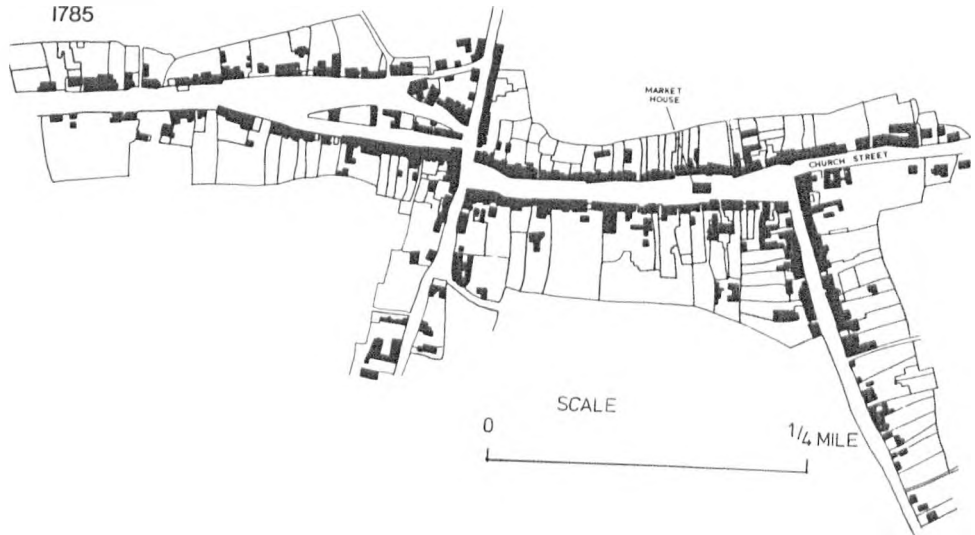


FIG.1:2 Some eighteenth century town plans.

Sources: Surrey Record Office. Haslemere, 1775, Ph. 234; Reigate, 1785, Acc. 378.

F.B. Benger, "The town area of Leatherhead in 1782,"
Proceedings of the Leatherhead and District Local History Society,
II, No.7. (1963).

eighteenth century shows that similarity in physical form was largely matched by similarity in function.³ Food and clothing were of most significance, followed by handicrafts (including the building trades), inns and the brewing industry. When these activities are ranked, according to their numerical importance for each town, the rank orders are identical in almost every case. However, Richmond and Farnham were functionally distinctive, because of their specializations. That "...many also of the nobility and people of fashion, invited by the beauty of the situation make Richmond an occasional residence.." is borne out by a plethora of exotic commercial activities.⁴ There were mantua makers, hatters and umbrella makers, and these together with dancing instructors, drawing masters and perfumiers all point to Richmond's place as a fashionable resort. This town had been a spa, although the wells were in decline at 1800 following a peak of popularity at about 1750.⁵ But unlike Epsom, Richmond continued to be a fashionable town; in 1758 the Park had been opened to the public, in 1775 the famous "Terrace" was laid out and the patronage of the nobility ensured the continuance of this important function.

Farnham lay at the centre of an important hop growing area, the links between the town and hop production gave it a unique character. Hop growing was a small scale enterprise and a hazardous one. Large capital inputs per unit of area were needed and although a good year might yield a high return, there was considerable risk of crop failure. In this situation, town and country came together, in the fiscal marriage of hop planter and shopkeeper. Of the 100 traders and professional men listed in the Universal British Directory (1798), twenty nine were hop planters and thirty six combined this activity with others.⁶ The combination of hop planter with other trades seems endless, ranging from collar makers, brickmakers and bankers to innkeepers and maltsters. The trade provided the working capital for the hop garden. In good years profits from hops could be invested in shop or workshop, while bad years did not spell total financial ruin.⁷ In respect of their ties with the countryside, Richmond and Farnham

thus occupied extreme positions; the former was divorced from its rural surroundings, while the hop industry gave the latter stronger links with its agricultural hinterland than those of any other town in Surrey.

Except for Richmond and Leatherhead, the urban centres were market towns, few parts of the county lying more than five miles from such a place. The market function was a direct link between town and country which found expression in specialization within the hinterland. Croydon market was important for oats and oatmeal. Farnham famed for its hop sales and Kingston noted for horses, store and dairy cattle. The towns were also small industrial centres, involved in processing crop and livestock products from the agricultural districts they served. Flour and oat milling and brewing were found in almost every urban settlement, although Farnham contained a significantly larger number of brewers than most towns; while in the west and south-west wool nourished the small woollen industries of Guildford and Godalming. Apart from their prime function as service centres of rural hinterlands, these places were stopping points on the stage-coach and carrier routes to the south and south-west. Innkeeper and shopkeeper alike benefitted from this passing traffic, indeed Leatherhead, the smallest town in the county, derived much of its trade from its position at the intersection of routes passing through the Mole gap and along the Chalk dip slope (Fig.5:7).⁸ Road transport linked the towns with the Metropolis, but at this date, the bonds between them and their countryside were of greater significance. A description of Croydon in the early nineteenth century catches something of the rural atmosphere which pervaded even this, the nearest town to London:⁹

...Croydon was a fair example of the towns of its class, urban centres of agricultural districts, before railways had connected them with the metropolis, or gas lighted their streets....the long narrow High Street stretched southward, dull rather than quiet, with here a slow grey-tilted carriers cart, and there a Brighton stage-coach stopping to change horses.. A little further on with the rest of the sleepy shops on the right and left and over the way the local Capitol, where farmers stood on market days behind their samples of corn on the ground floor.

Suburban South London

In 1800 suburban growth had little more than a foothold in North Surrey, where it was linked to the Thameside districts. On the north bank of the river, by contrast, London's continuously built-up area was far more extensive, reaching out beyond the Cities of London and Westminster to Chelsea and Kensington in the West, Regents Park in the north-west, and Bethnal Green and Stepney in the east. By comparison the Surrey bank was undeveloped, the intensively built-over area being concentrated on the bridgehead at Southwark, with fingers of housing pointing outwards along the main roads, as for example along the turnpikes to Kennington and Camberwell (Fig.1:3). The centres of government, trade and industry, were separated from Surrey by the Thames.¹⁰ Several new bridges had been built between 1750 and 1800, but their effect on suburban development was not felt for some time. This was partly because of a time lag between the opening of a bridge and the construction of approach roads to it.¹¹ Even when roads were developed, the improved accessibility did not remove all of the impediments for the potential developer. Parts of North Surrey consisted of poorly drained marshland which yielded good crops of hay, but in its ill-drained state, was scarcely fit for building. Westminster Bridge had been built between 1736 and 1755 and Blackfriars between 1756 and 1766. In 1767 the Blackfriars Bridge Committee had petitioned Parliament that two turnpikes be developed to open the way south, one from Newington Butts to Southwark, the other from Kennington Common to Westminster. The Act for their construction received the Royal Assent in 1769.¹² The new roads intersected in St. George's Fields; an area of poorly drained land where many of the street sweepings of London were deposited. Easy access to London was evidently not enough, for little speculative building took place here until after 1809, when an Act to drain the area was passed.¹³ Similarly, nearby Walworth Common had been enclosed in 1769 and vested in Trustees for the Poor, who were empowered to let it on ninety-nine year building leases. Most of the expected income was to go to poor relief. In fact, little building took place here until after 1800, because of liability to flooding.

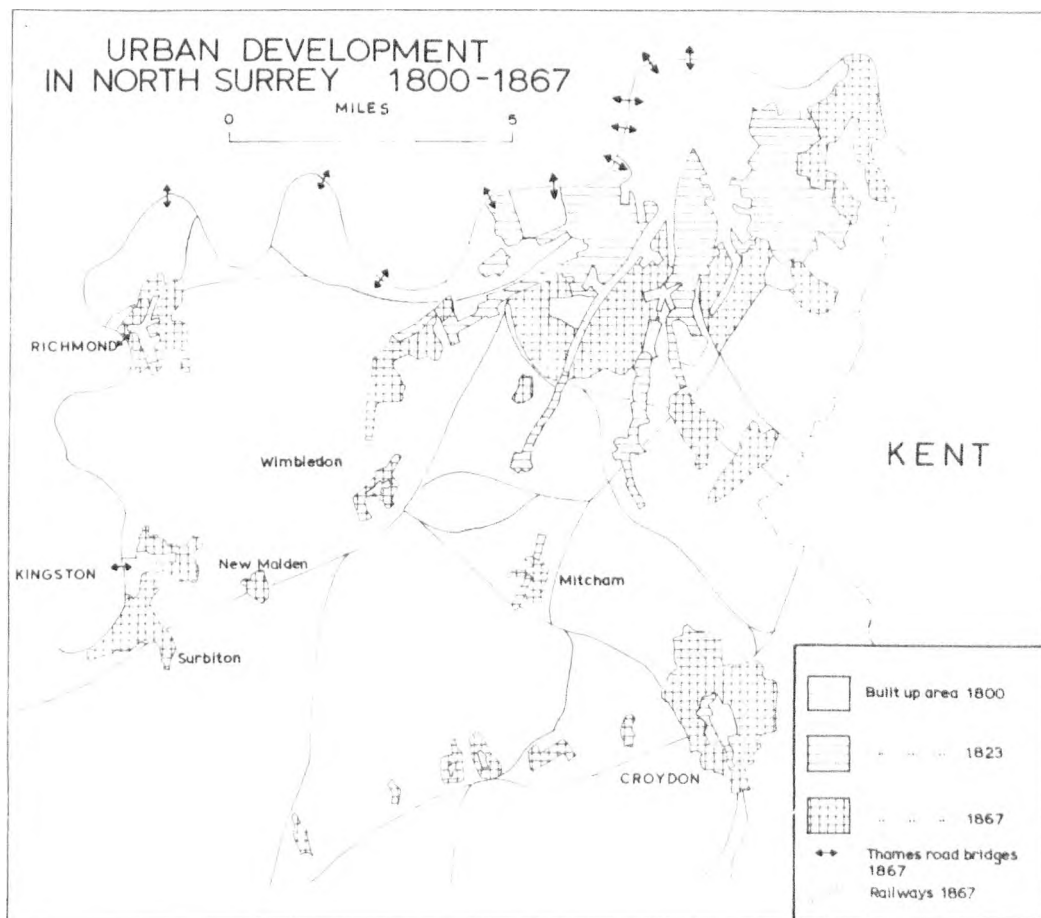


FIG.1:3.

Sources: Ordnance Survey, One inch to one mile map, 'First Edition,'
 C.Greenwood, Map of the County of Surrey, 1823;
 Ordnance Survey, One inch to one mile map, 'Second Edition,'
 or New Series.

Land drainage took place some years after the development of the roads and the enclosure of the common respectively. Prior to 1800, the demand for building land had been more than matched by its availability and there was therefore little justification for large investments in drainage.

At the turn of the century, building developments were still taking place near to the bridges, especially in the ancient bridgehead settlement of Southwark. Although most of the land in the Borough had been built over long before 1800, demolition and repletion continued to modify the urban landscape during the nineteenth century. Swann's study has shown how small houses, notably in numerous courts and alleys, were replaced during the eighteenth century, by larger, more substantial properties.¹⁴ Quite often land and property were let, either on twenty-one year repairing leases or ninety-nine year building leases. The development of these longer leases was to be very important for the form of the later suburbs.¹⁵ A builder was not inclined to construct a house that would last much longer than his lease, thus, houses built on twenty-one year leases were not likely to be well constructed. Beyond Southwark, apart from the villas along and close to the main roads, a rural landscape was pre-eminent. Only the wealthy, who could reach the capital with comparative ease after the opening of the new bridges and their approach roads, could afford to live in such places as Clapham, Camberwell or Kennington. Lysons considered Camberwell to be, "...a very commodious residence for those persons who, from inclination or for the benefit of the air, are induced to prefer a country residence, though business calls them daily to the metropolis."¹⁶ By the early nineteenth century therefore, the dominant characteristics of the landscape of Surrey were agricultural: the towns stood in symbiotic relationship with the countryside. However, in North Surrey, the beginnings of a more rigid segregation of the urban and the rural was in evidence. The pattern of suburban development, which was later to become so familiar, had begun to emerge. Its important ingredients, improved transport facilities, the speculative builder and his capitalist backer, the enterprising

landowner and the longer building lease, were all in evidence. The demand for building land, though less intense than it was later to become, had inflated land values in the district nearest to London, while the industries of the south bank competed with agriculture for labour and so led to higher wage rates.

¹British Museum Map Room, Ordnance Survey, Surveyors' Drawings, Surrey. OST 89 (1), (2).

Bodleian Library, The Ichnography or Ground Plan of Guildford, the county town of Surrey. Gough Maps, Surrey 8 (1739).

²Croydon Public Library, Croydon Enclosure Award.

Surrey Record Office, Haslemere, 1775, Ph.234; Reigate, 1785, Acc.378.

³Guildhall Library, Universal British Directory, Vol.1V. (London: 1798).

⁴Henry Hunter, The Environs of London (London: 1811), p.140.

⁵E.B. Chancellor, The History and Antiquities of Richmond (Richmond: 1894).

⁶Guildhall Library, Universal British Directory, Vol. 111. (London: 1798).

⁷The nineteenth century saw the peak of Farnham hop growing. Temple has shown how the physical form of the town was changed as prosperous growers modified the facades of their houses with the profits made in favourable seasons.

Nigel Temple, Farnham Inheritance (Farnham: 1956).

⁸Innkeepers, blacksmiths, saddlers, harness makers and wheelwrights accounted for 25% of the total number of traders in Croydon, 21% in Guildford and Farnham, 20% in Leatherhead and 11% in Richmond. These figures compare well with the density of stage-coach services (Fig. 5:7), and although these trades also served the agricultural community they provide some indication of the relative importance of the towns as route centres.

⁹From a collection of reminiscences of Croydon. This account was written in the 1860's.

Croydon Advertiser, Croydon in the Past (Croydon: 1883).

¹⁰Southwark had developed as an industrial area in its own right before 1800. Archer has shown how a large number of industries developed here during the seventeenth century, very often because of restrictions placed upon them by the City of London or by the lack of space for development on the north bank of the Thames.

J.L. Archer, "The Industrial History of London 1603-40 with special reference to the suburbs and those areas claiming exemption from the authority of the Lord Mayor," (unpublished M.A. Thesis, University of London, 1934).

¹¹The dates of construction of the bridges over the Thames during the eighteenth century were:

1729 - Putney 1736-50 - Westminster
1756-66 - Blackfriars 1771-72 - Battersea

P.M. Carson, "The provision and administration of bridges over the lower Thames 1701-1801 with special reference to Westminster and Blackfriars," (unpublished M.A. Thesis, University of London, 1954).

¹²Great Britain, Laws, Statutes, etc., 9 Geo.111, ch. 89.

¹³Great Britain, Laws, Statutes, etc., Local Act, 49 Geo.111, ch. 183.

¹⁴The process of house reconstruction in this part of North Surrey is well illustrated by an example from the records of the Bridge House Estate. The same piece of land is involved throughout: Bridge House Journal. 5. p. 137. '2 acres of land in Southwark let on a building lease in 1670. By 1720, 10 houses with gardens had been laid out.'

Bridge House Journal. 7. p. 252-3. 'The 10 houses let on a repairing lease of 21 years in 1740. In addition several streets of tenements were laid out behind the 10 houses giving a total of 50 dwellings.'

Bridge House Journal. 9. p. 54-5. 'In 1745 a building lease again granted to demolish all of the buildings and to build 4 brick houses in their place.'

B.A.S. Swann, "A study of some London estates in the eighteenth century," (unpublished Ph.D. Thesis, University of London, 1964).

¹⁵Dyos discusses the development of (what he calls) 'the short building lease' in:

H.J. Dyos, Victorian Suburb - a study of the growth of Camberwell (Leicester; 1961), pp. 39-40, 89-90.

¹⁶D. Lysons, The Environs of London, Vol. 1 (London: 1792), p.81.

CHAPTER 11
THE RURAL LANDSCAPE

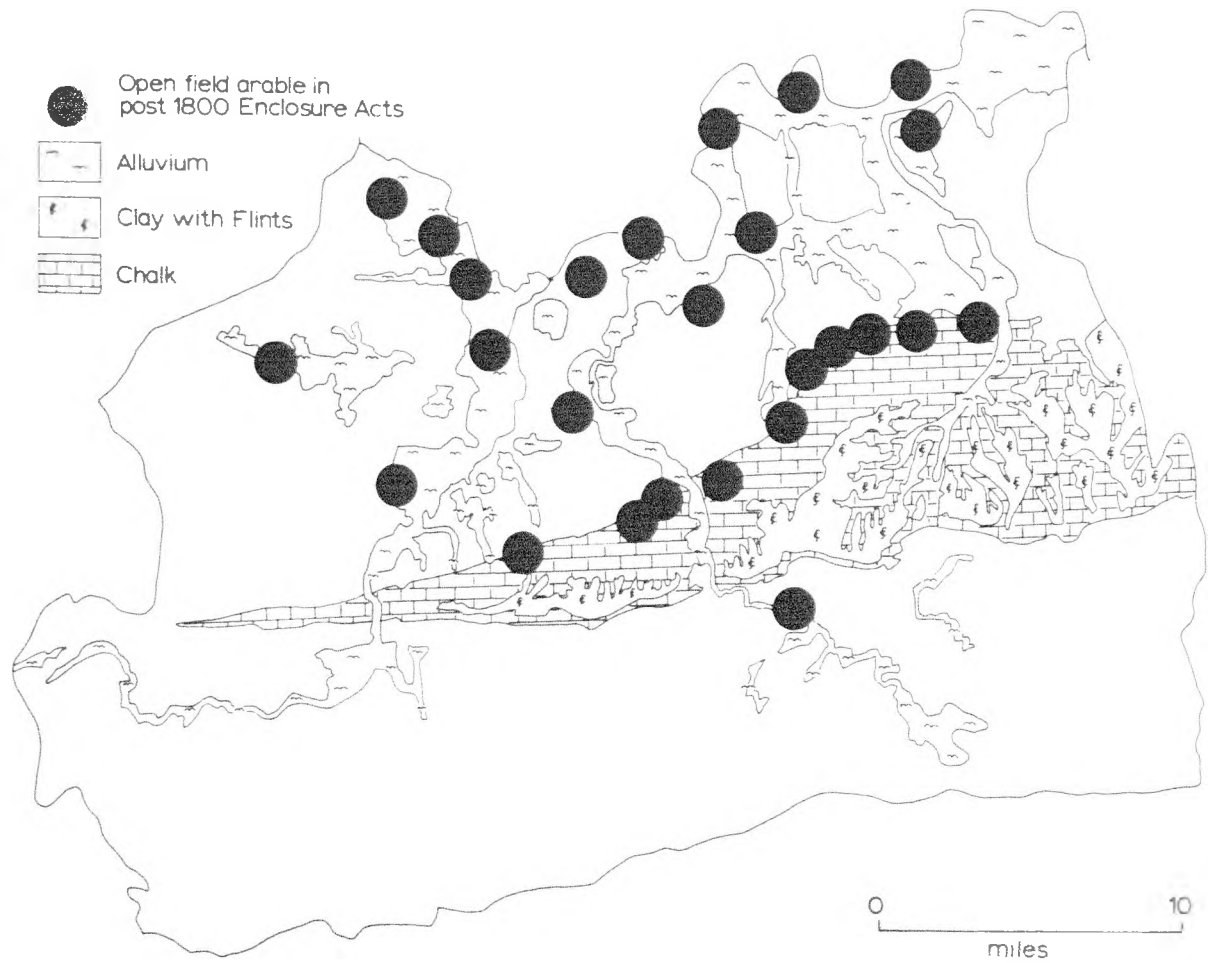
Woodland.

Today the rural landscape of Surrey is well wooded, but at 1800 this was not the case.¹ The woodland then was of three kinds. The commons and heaths were in general thinly wooded, an indication of their continuing role in the agricultural economy. On the heavy clays and particularly in the Weald, the small fields were surrounded by broad hedgerows containing a considerable amount of timber. These trees provided shelter for stock, cover for game and, when pollarded, yielded fencing poles and small timber for charcoal. More extensive estate woodland, in park or plantation was locally important, especially on the infertile patches of Lower Greensand in the south-west, where trees were both a useful source of income and a means of improving the 'natural' landscape. However, before the enclosure of large acreages of poor sands in the west and south-west of the county and before the dramatic fall in agricultural prices after 1813-- when some landowners saw woodland as a better financial proposition than agriculture on the clays, trees were rarely economic competitors for the use of the land.

Parkland.

London's wealth, together with Surrey's topography and proximity to the metropolis, help to account for the large number of parks which had made their appearance by 1800. The axis of the North Downs -- a zone of rolling and broken countryside constituted the most important single grouping of parkland, from which two concentrations stretched from Carshalton to Richmond and from Leatherhead to Chertsey. A fourth zone of "little parks" (the term used by Thomas Milne to describe the large gardens of suburban villas), formed a significant land-use element in the north of the county.² Although small by comparison with Clandon or Claremont, some of these parks had been landscaped by Lancelot Brown and later by Humphrey Repton.³ It is perhaps worth noting that the majority

Fig. 2:1. Subdivided arable in post 1800 Enclosure Acts.



of the parks improved or laid out by these two famous landscape gardeners lay between Carshalton and fashionable Richmond, at a convenient distance from London.⁴ Indeed the distribution of parkland is symptomatic of the reduced influence of London with increasing distance. The old established parks were the seats of county families such as the Onslows of Clandon or the Evelyns of Wotton, whose distribution was the product of history, and whose antecedents are depicted by Norden and Speed. Nearer London too this element was present, but added to it were the new houses of fashionable London society, whose grandiose villas in the north-eastern corner of the county were embellished with landscaped gardens. In a sense the "little parks", were precursors of later suburban growth, for they were largely divorced from the countryside in which they stood.

Subdivided arable

Whilst parkland hints at the co-existence of some features of both town and country near the metropolis, the enigma of the survival of subdivided arable land at no great distance from London might suggest, on the other hand, that urban influence on the rural landscape was still superficial. (Fig. 2:1). It could be argued that the high agricultural costs incurred in North Surrey could not have been met within a system of open field farming. von Thunen placed the less intensive field systems at some distance from his "town."⁵ Why did subdivided arable survive within half a day's journey of the metropolis or in some cases even nearer? This question can be answered only by reference to events before 1800.⁶

At the beginning of the nineteenth century, two groups of open-field arable could be distinguished. One was associated with the Alluvial soils, especially those bordering the Thames and another with the lower dip-slope of the North Downs, both areas with comparatively good soils. (Fig. 2:1). In detail, it is clear that within individual parishes, the subdivided arable was located with reference to the land of high inherent quality. Thus, on the one hand heavy clays and on the other thin chalky soils, were avoided.



FIG.2:2. Subdivided arable in Great Bookham, 1804.

Source: Surrey record Office, Survey of Great Bookham, 1804, 177u, A9/B.

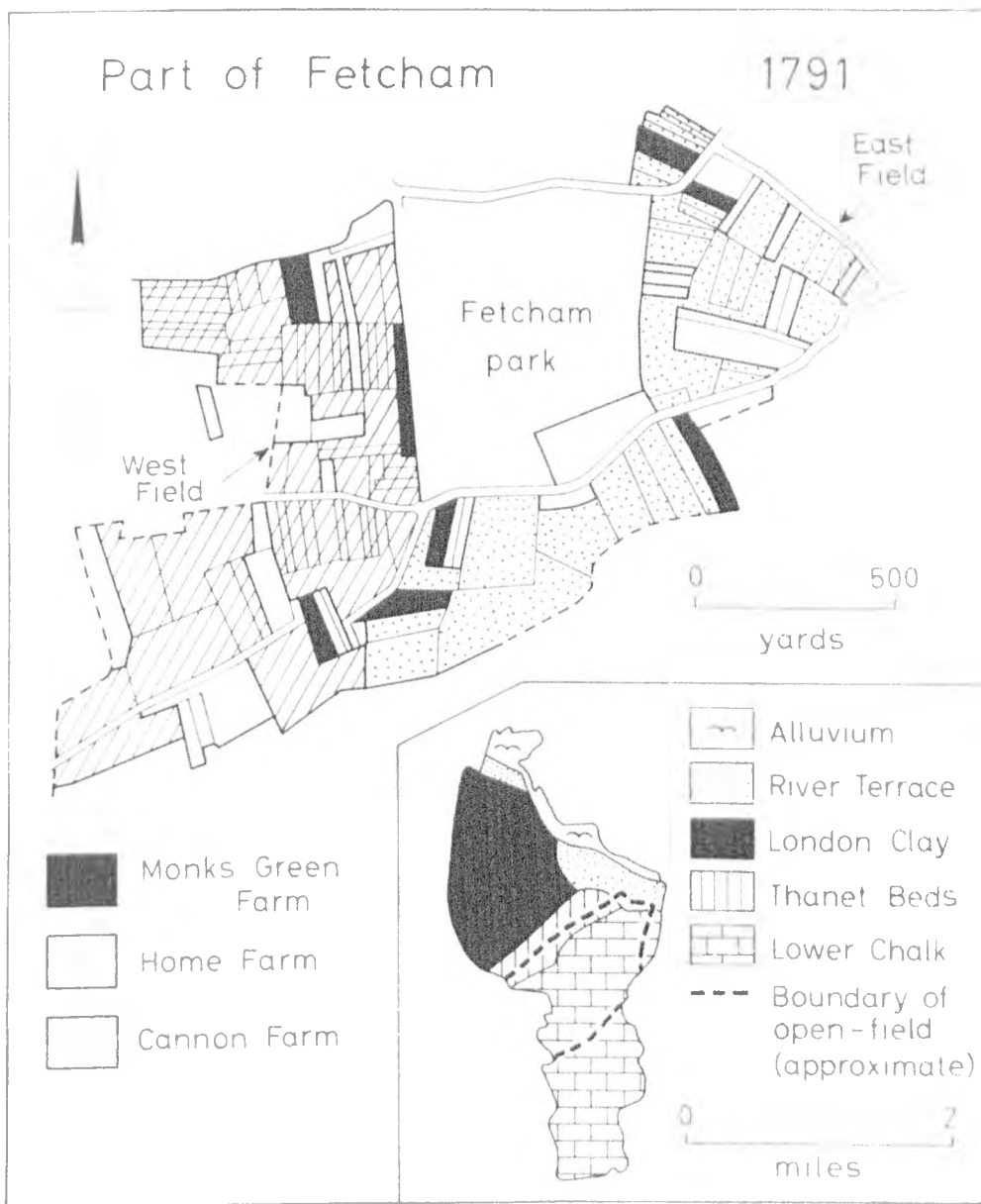


FIG. 2:3.

Source: Minet Library. Plan of the Estate of Sir George Warren lying in Fetcham, Cobham, etc., 1777. M.I.49.

PART OF THE PARISH OF LONG DITTON (18th century)

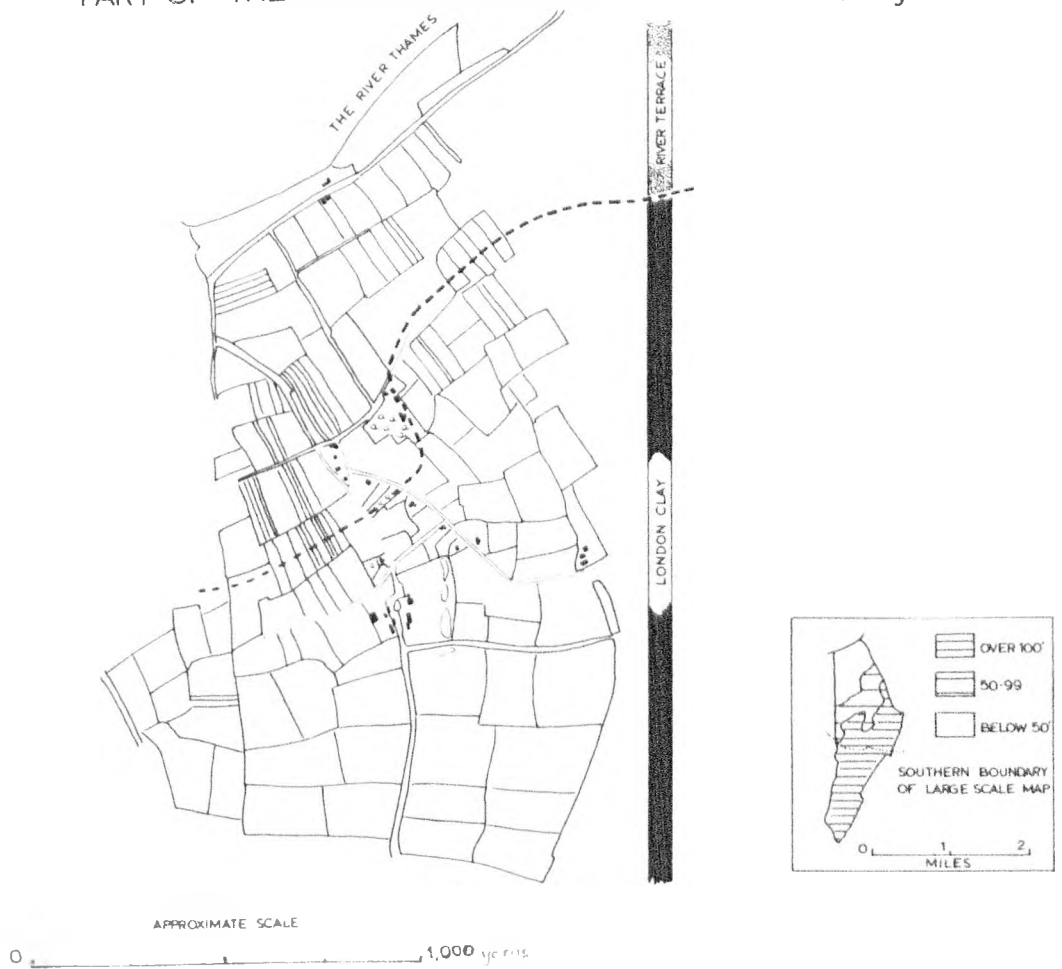


FIG. 2:4.

Source: Surrey Record Office. Map of the lands and parishes belonging to the Right Honourable Peter King in Long Ditton etc.; c.1796.Ph.290a-b.

PARISH OF BATTERSEA - 1787



FIG.2:5.

Source: Surrey Record Office. Plan of the Parish of Battersea, 1787.
Ph. 239.

Research elsewhere has shown that such a distribution was not peculiar to Surrey. Roden in his study of the Chilterns, found subdivided arable along the Thames terraces and at the foot of the Chalk escarpment and lower dip-slopes.⁷ In Kent, Baker noted that it was confined to the lower slopes of the North Downs and to the Vale of Holmesdale.⁸ Surrey subdivided arable was rarely organized in a hierarchy of strips, furlongs and fields. Most commonly the furlong was the highest order of grouping.⁹ (Figs. 2:2, 2:3, 2:4, 2:5). This picture is confirmed by references to the "common field" in surrenders and admissions for Great Bookham and in the glebe terriers for the county as a whole.¹⁰ Whenever subdivided arable is described, the singular form "field" is used in every case.

The use of the furlong as the unit of organization, rather than the field allowed a greater flexibility in cropping. The existence of a pattern of unenclosed strips and parcels did not necessarily mean that agricultural practices were tightly controlled by the Manor Courts.¹¹ There is ample evidence in Surrey and elsewhere, that these relict features, although inconvenient by 1800, were not insuperable barriers to the spread of new crops or of intensive farming systems.¹² In Great Bookham and Fetcham for example (Figs. 2:2 and 2:3), most of the surviving open-field arable formed parts of farms the majority of whose land was held in severalty; the subdivided arable did not constitute a significant part of any one holding. Thus the small amount of subdivided arable land normally held by any one individual limited any effects it might have had on farming practice. The common field regulations were sometimes modified to allow the cultivation of crops which required either a ley or a late harvest. At Great Bookham, sown grasses in the common field were protected from livestock in Autumn, although in neighbouring Little Bookham it was alleged that a certain Woodman entered the common field, "...with 1000 sheep treading down, trampling upon, eating up, consuming and spoiling the clover, cinque-foil grass and herbage of the land..."¹³ At Effingham it was recorded that:¹⁴

...for there is a large common field containing about 500 acres which field is in some measure divided into different parts by hedgerows which run in different

directions but there is no actual partition of one part from the other. Many have land scattered about in this field. When all their corn is carried off they turn in their sheep and keep them there till Old St. Andrew's day.....if any part of the field is in turnips there is a tacit consent from the others that it should be hurdled off, this however is a modern husbandry.

Even when some elements of an open-field system survived, agricultural improvement was not impossible. Intensive agriculture was also followed within an open-field framework. The subdivided arable of Battersea and Mortlake (Fig. 2:5), produced market garden crops in a system in which high inputs and high yields were the norm. Although agricultural advance and intensive farming occurred in Surrey's open-field, the enigma of their survival to 1800 in an area so close to London has only been partially explained here. These remnants of an older agricultural order are a comment on the limited effect of London upon the agricultural landscape in 1800: their disappearance during the succeeding forty years is testimony to an increasing interaction between London and its countryside.

Commons and heaths.

At the beginning of the nineteenth century commons and heaths were second only to cultivated land in extent, occupying about one sixth of Surrey.(Fig.2:6). The poorer the soil, the more extensive the commons or heathland. However, not all of the Bagshot Beds or the Hythe Beds of the Lower Greensand were in these categories, although they produced soils of low agricultural potential. Most of these areas were located on the higher land, not so much in relation to the general relief of the county, but with reference to their immediate vicinity.¹⁵ While in some cases, a rise in altitude of fifty feet may have been associated with a decrease in soil potential, it is unlikely that this alone determined the limits of cultivation. It is tempting to suggest that these areas had not been reached by post-Saxon settled agriculture, which had expanded from the valleys, river terraces, or the fertile loams of the lower dip-slope of the North Downs.

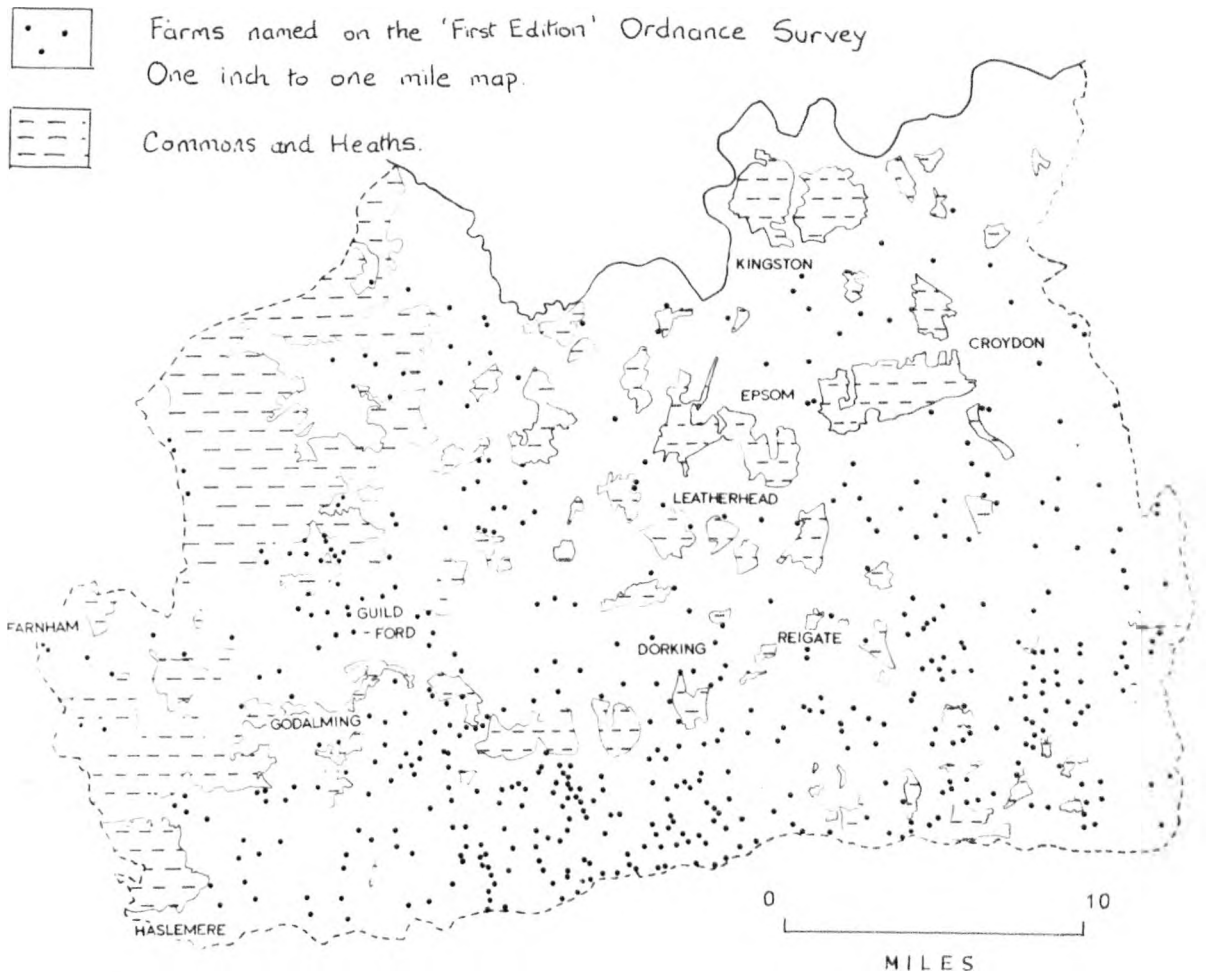


FIG. 2:6. Commons, heaths and farms, c.1800.

Source: Ordnance Survey, One inch to one mile map, 'First Edition.'

To describe them as relict features at 1800 is only partly correct, for they were still used for agricultural purposes to a greater or a lesser degree. Their vegetation was itself evidence of their use: a plagio-climax maintained by grazing animals, following woodland clearance, which E.I.M. Jones maintained had its maximum effect on the western heaths by the end of the eighteenth century.¹⁶ Much of Surrey's heathland is now light woodland colonized by bracken, birch and conifer -- a stage in the regeneration of a woodland cover.¹⁷ At 1800 the Downs carried a grassland cover whilst the commons of the Greensand and Clay-with-flints were open heathland. The vegetation of these areas was maintained by livestock; the only invaders who could survive were the "armed or thorny species" such as gorse or hawthorn, and their spread was limited by stock which browsed the young shoots.¹⁸ The sandy heaths of the west and south-west included some of the worst soil in Surrey. Contemporary commentators capped superlatives in describing them. Stevenson considered that "it is difficult to conceive a character of soil worse than that of the heaths of Surrey." James and Malcolm alleged that "no animal can live on these wastes in their present state," while for Cobbett Hindhead was "certainly the most villainous spot that God ever made."¹⁹ Poor hussocky grasses and heather were the understorey above which stood clumps of birch, broom or Scots pine, the latter self-sown from the ornamental parks of the heathland margins. Common grazing rights were still exercised at 1800 and when enclosure took place, allotments were made in lieu of them. These large areas were not grazed intensively "...a very few poor looking cattle and sheep are seen scattered over some of them, picking up a scanty support with much difficulty and labour."²⁰ Apart from their use for livestock, the western heaths were a source of peat, of brooms made from the larger growths of heather, of blueberries gathered for sale, while some of their ponds were used to rear fish. For the cottagers, whose encroachments were to be found gnawing at their margins, the commons were a useful source of additional income. Locally the resources of the wastes were subject to pressure from over-use. William Bray upon receiving a request from an outsider to cut turf

on one of his manors replied:²¹

"You are welcome to cut some turf for your own use this year.....I wish to measure the turf taken for many reasons; if cutting it were to become general and it is difficult to make distinction there would soon be neither turf nor wood."

Bray kept careful accounts of turf cutting on this Lower Greensand common, in an attempt to conserve its resources.

On the North Downs, despite the high prices of the war years and the letters to the Annals of Agriculture advocating the enclosure of the downland, this temptation was largely resisted.²² The valuable grassland grew on a soil with limited potential for cultivation. Since they are thin, flinty and have a deep water-table, undoubtably "...a certain advantage would thus be destroyed for the sake of a very uncertain profit."²³ On these and the clayland commons, attempts were made to limit livestock numbers, in this respect at least the Manor Courts still functioned. Nevertheless, in the Weald especially, the commons were often waterlogged and soon poached, despite the low stock numbers on most Wealden farms at this time. The contemporary view was that these commons were overstocked, thus the shortage of keep in this district was not much augmented by common grazing. The contrast between the commons of the urban fringe and those of the country, lay not so much in the type, but in the extent of their usage. Thus gravels were needed in massive quantities, to repair the heavily used roads which converged in North Surrey en route for the Thames bridges. Similarly, the demands of bakers and others who cut fuel and of cowkeepers who pastured their animals on the common, were far greater than in districts more removed from London. Soon after Kennington Common was opened in May, it was poached and overgrazed to such an extent, that it was of no further use until autumn.²⁴ Battersea and Clapham Commons drew a most unusual comment from those staunch advocates of enclosure, the Board of Agriculture Reporters, who considered them to be as productive as if they were enclosed!²⁵

The Farms

Just as the distribution and extent of common and heath

represented the sum of a series of landscape evaluations -- the product of which constituted an important part of the landscape at 1800 -- so too the pattern of fields and farms was the result of past considerations and events. There were significant variations in the size of field and holding, which can be interpreted as reflecting chiefly contrasts in soils. The prime exceptions to this were the small intensively cultivated market gardens of the Metropolitan fringe, where land was "generally let at a high rent...principally divided into small quantities of five to fifty acres for the accommodation of gentlemen who keep cows, cowhouses or who wish to enlarge their gardens."²⁶ In the Metropolitan fringe, the effects of soil on farm size were blurred by urban influences, whereas in districts more removed from the capital, the basic distinction was between the heavy and light lands. At one extreme lay the Weald, "... the further you advance into the Weald the smaller the farms become,"²⁷ an area noted for the preponderance of small farms and small fields surrounded by broad hedgerows. In marked contrast were the generally bigger holdings and more open landscape which typified the Greensand and the Chalk. Figure 2:6 based on the First Edition of the Ordnance Survey, gives a qualitative picture of the distribution of farms at the end of the eighteenth century. In its essentials 2:6 is confirmed by the Board of Agriculture Reports of 1794 and 1809 and by James Malcolm, who presented the following analysis of holding size in Surrey:²⁸

Claylands:	30-300 acres.
Chalk:	60-600 acres.
Sandy loams:	40-450 acres.
Sands:	50-150 acres.
Mixed Soils:	40-1000 acres.

¹The Census of Woodlands (1949) showed Surrey to have 73,344 acres of woodland which was one sixth of the area of the County.

Great Britain, Forestry Commission, Annual Report, No. 5, 1953. (London: Her Majesty's Stationery Office).

²British Museum Map Room, A Plan of the Cities of London and Westminster circumjacent Towns and Parisheslaid down from a trigonometrical survey taken in the years 1795-9. King George III's Topographical Collection, Vol. 6, item 95.

³H.C. Prince, "Parkland in the English Landscape" Amateur Historian, III, No.8 (1958).

⁴Ibid.

⁵P. Hall, ed., von Thunen's Isolated State (London: 1966).

⁶There has recently been some discussion as to whether cultural differences can account for regional contrasts in open-field systems. See for example:

J.Thirsk, "The Common Fields" Past and Present, No.29 (1964).

J.Z.Titow, "Medieval England and the open-field system," Past and Present, No. 32 (1965).

J.Thirsk, "The Origin of the Common Fields," Past and Present, No. 33 (1966).

⁷D.Roden, "Studies in Chiltern Field Systems" (unpublished Ph.D. Thesis, University of London, 1963).

⁸A.R.H.Baker, "The Field Systems of Kent" (unpublished Ph.D. Thesis, University of London, 1963).

⁹Lambert produces evidence of the organization of subdivided arable at Banstead in the sixteenth century in groups of furlongs in one common field.

H.C.Lambert, A History of Banstead in Surrey (Oxford: 1912).

¹⁰Surrey Record Office, Court Rolls, Great Bookham, 1801-12, 34/25.

Greater London Council Record Office, Surrey Glebe Terriers, DW/S.

¹¹Baker has drawn attention to the need to distinguish between subdivided arable land which was organized and cultivated in common and that which was no more than a field pattern.

A.R.H.Baker, "The Terminology of British Field Systems," Agricultural History Review, XVII, (1969).

- ¹² J.D.Chambers and G.E.Mingay, The Agricultural Revolution 1750-1880 (London: 1966), pp. 49-53.
- ¹³ Surrey Record Office, Pollen Estate Papers, 1769, Acc.218, Box 596.
- ¹⁴ Ibid.
- ¹⁵ A.D.Hall and E.J.Russell, The Agriculture and Soils of Kent, Surrey and Sussex (London: 1911), discusses the relationship between relief and the location of commons and heaths.
- ¹⁶ E.I.M.Jones, "The progress of reclamation on the Bagshot Series between the Lodden and the Wey" (unpublished M.A.Thesis, University of London, 1963).
- ¹⁷ Tansley describes the English lowland heaths as "a seral community preceding woodland."
A.G.Tansley, Britain's Green Mantle (London: 1968), p.354.
- ¹⁸ Ibid.
- ¹⁹ W.Stevenson, A General View of the Agriculture of Surrey (London: 1809), p.39.
W.James and J.Malcolm, A General View of the Agriculture of Surrey (London: 1794), p.23.
W.Cobbett, Rural Rides. (Penguin ed., London: 1967), p.89.
- ²⁰ Stevenson, General View, p.459.
- ²¹ Guildford Muniment Room, Bray Estate Records, turf cutting accounts, 85/16/10 (81).
- ²² Stevenson, General View, p.481.
- ²³ Ibid.
- ²⁴ James and Malcolm, General View, p.10.
- ²⁵ Ibid, p.20.
- ²⁶ Great Britain, Public Record Office, 1801 Crop Returns, Tooting, H.O.67.
- ²⁷ J.Malcolm, A Compendium of Modern Husbandry principally written during a survey of Surrey (London: 1805), p. 95.
- ²⁸ Ibid.

CHAPTER 111
AGRICULTURAL LAND-USE

The Metropolitan Margins

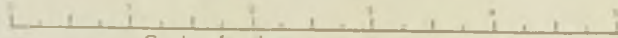
The agricultural decision-making process was primarily a reaction to markets. For Surrey farmers, there was only one effective market -- London. The county markets were chiefly engaged in gathering agricultural produce from their hinterlands, as part of a chain of supply which terminated in the metropolis. If variations in soils are disregarded, a model of land use in Surrey at 1800 would not differ significantly from the inner sections of von Thunen's "Isolated State." The extent of the Metropolitan Margins is defined in terms of intensity of land-use and costs of production, which largely reflected a high degree of interaction between town and country and between the market and its immediate hinterland. The gradient of land rents and labour costs dipped steeply away from London to level off as the capital's influence diminished. At the same time transport costs rose almost in direct proportion to distance from the Metropolis and hence, in theory, would become a greater part of total costs. In the district nearest London, identified here as the Metropolitan Margins, these three variables were often as important as soil differences, in accounting for the pattern and the intensity of land-use. Thomas Milne's remarkable map (Fig. 3:1) shows a zone of intensive cultivation on London Clay, alluvium and brickearth -- a patchwork of market and nursery gardens, grassland and "little parks."¹ The southern limit of this district was bounded by a line joining Peckham Rye, Brixton and Clapham Commons, while to the west, it extended along the Thames as far as Richmond. As James Malcolm observed:²

The land from the left of the turnpike to the Kent road, to the right as far south as Brixton causeway on the one road and to Tooting on the other is chiefly confined to the nurserymen, gardeners, cowkeepers and brickmakers together with the scattered residences of the traders of London. The land is too dear for farmers as such to occupy.

LAND-USE IN NORTH SURREY AT THE END OF THE EIGHTEENTH CENTURY

Part of 'A Plan of the Cities of London and Westminster circunjacent Towns and Parishes.....' laid down from a trigonometrical survey taken in the years 1795-9, by Thomas Milne.

- | | |
|--|---|
|  Arable |  Commons |
|  Meadow/Pasture |  Common field arable |
|  Market gardens |  Common field meadow |
|  Nurseries |  Common field meadow/arable |
|  Little parks |  Common field arable/market garden |



Scale of miles

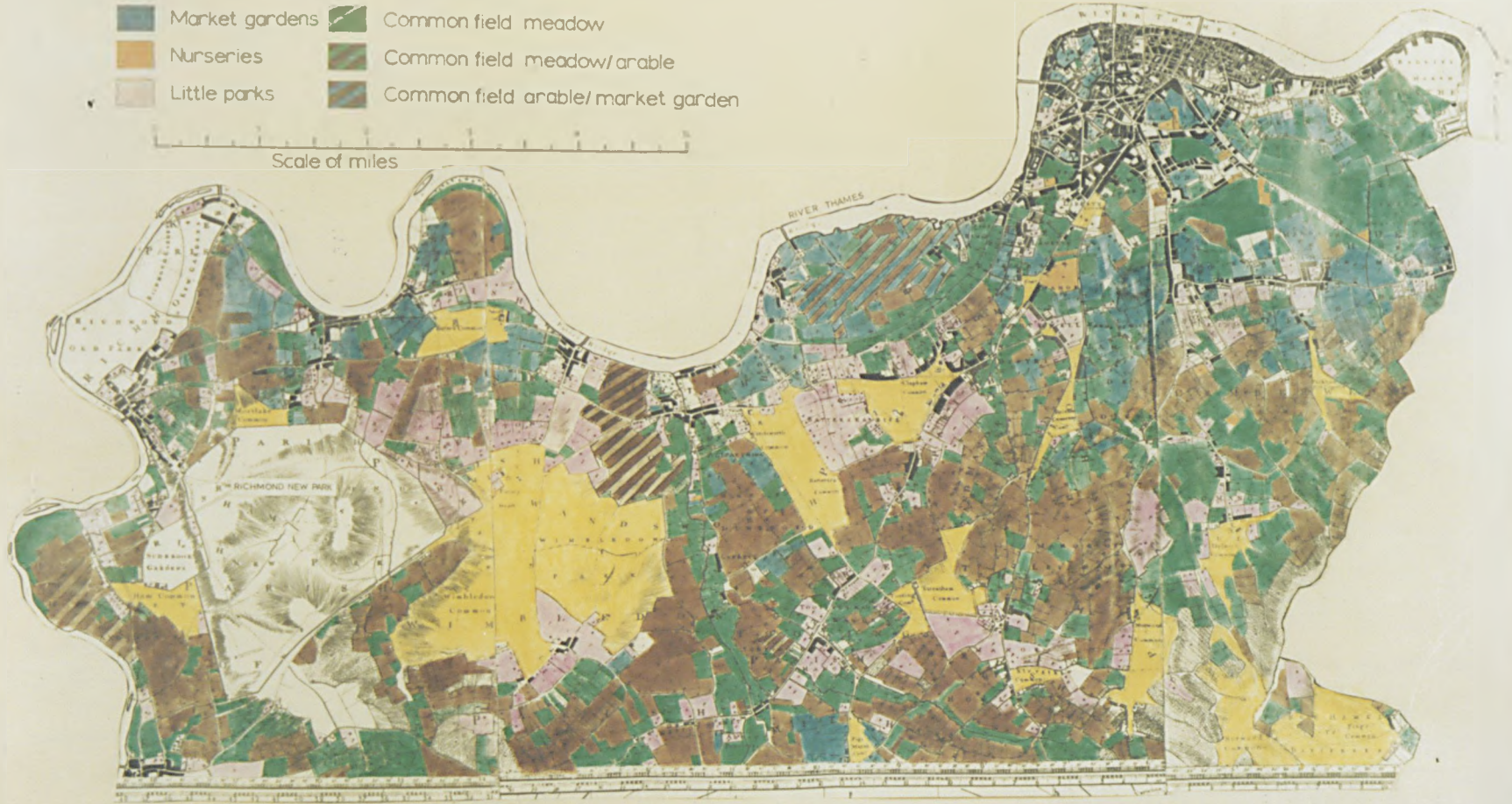


FIG. 3:1.

To the south as far as Streatham and Wimbledon, market gardens were less in evidence, and although vegetables were widely grown, they were produced by the less intensive methods of the farming gardener. Within the Metropolitan Margins there was a gradient of land-use intensity which is well illustrated by a comparison of the practices of the market and farming gardeners. The market gardener made maximum use of his land, which was rarely without growing crops:³

....soon after Christmas, when the weather is open, they begin by sowing the borders and then the quarters, with radishes, spinach, onion and all other such seed crops. As soon afterwards as the season will permit, which is generally in February, the same ground is planted with cauliflowers from the frame as thick as if no other crop had possession of the ground. The radishes etc: are sent to market and then the sugar-loaf cabbages are planted. When these are marketed the stalks are taken up, the ground cleared and planted with endive and celery and daily as these crops are sent to market, the same ground is cropped for winter use.

To achieve high yields and early crops the market gardener tended to make use wherever possible, of the lighter soils of North Surrey. The London Clays were avoided in favour of the free draining but hungry alluvium and brickearth, both of which have a high sand content.⁴

Site selection alone could not produce the large returns necessary to offset the high land and labour costs characteristic of the area nearest to London. According to Malcolm the average rent paid within four miles of London was £4 per acre, although sums of £10 and £12 were not unknown, and beyond this distance up to one hour's drive from the Metropolis, rents averaged £3.10s per acre.⁵ Stevenson noted that the cost of agricultural labour and the difficulty of obtaining it also increased with proximity to the capital.⁶ To make best use of the light soils in a system where high productivity was the norm, the land was carefully cultivated. It was well dug and kept weed-free, drained with the object of keeping the land just above the water-table, protected against cold winds by means of fences of reeds and wood and above all else well

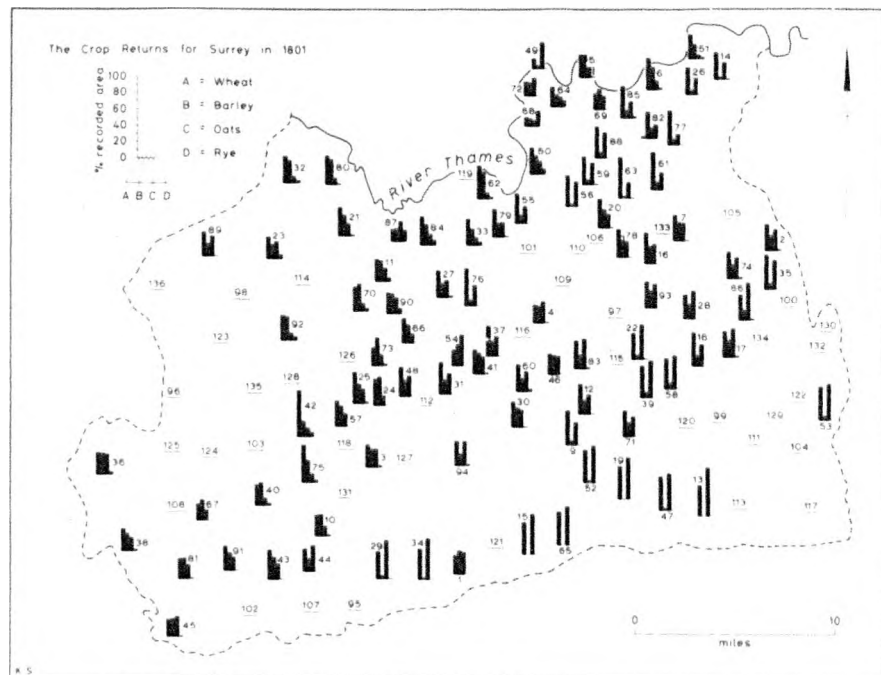


FIG.3:2. The 1801 Crop Returns for Surrey: cereals.

Source: The 1801 Crop Returns for Surrey, P.R.O. H.O.67.24; 67.4.

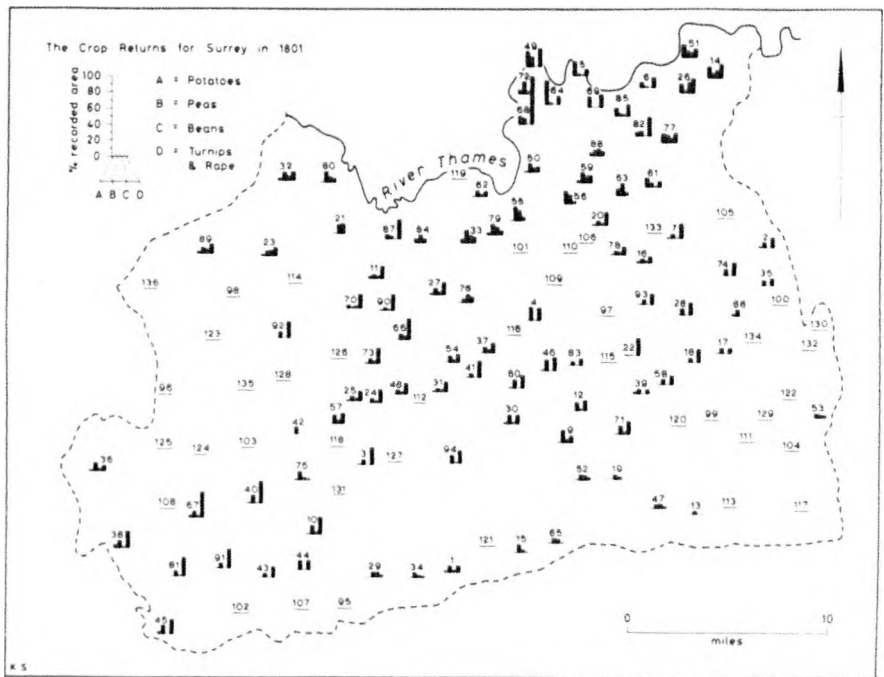


FIG. 3:3. The 1801 Crop Returns for Surrey: fodder crops.

dunged. One of the chief factors in maintaining high output was the liberal application of dung and since livestock were rarely kept, recourse was made to, "the overflowing exuberance of London that is capable of converting deserts into dunghills."⁷ For the market gardener producing considerable quantities of vegetables and buying in large amounts of town dung, the cost of carriage was of considerable importance, proximity to London or to the Thames, where water transport could be utilised, were significant considerations in determining his optimum location.

The pattern of production changed with distance from the metropolis and the market gardeners gradually gave way to the farming gardeners, who occupied larger holdings and worked with the plough rather than with spade or hoe. The farming gardener's less intensive systems generated lower transport costs, since he used less manure and produced smaller quantities of vegetables per acre than was usual in the market gardens. Nevertheless, although livestock were occasionally kept, it was more usual for dung to be purchased.⁸ Vegetables which required less manurial input were produced. Peas were such a crop, "if the land is in good heart, a light sprinkling of dung is carted on the land during frost but in general the land is not dunged."⁹ They grew well on the sandy loams and the 1801 Crop Returns (Fig.3:3) suggest their importance in a number of the more distant Thameside parishes such as Chertsey, Egham and Thorpe. Cabbages also filled a useful niche. Their cultivation required a considerable amount of labour, for the land was first ploughed four times, dunged, harrowed and rolled before the cabbages were finally planted; they were then hand-hoed twice and earthed up twice before being harvested. Since the cabbage was generally less valuable than salad crops or vegetables, it could not bear the higher land and labour costs that accompanied proximity to London. However, the manure requirements for this crop were about half as much again as for turnips. This meant that there were limits within which this crop could economically be grown, before less intensive practices replaced the systems of intermediate intensity, in which the cabbage and other vegetables found a place. The farming gardener occupied a

geographical position between the highly specialized market gardener and the integrated livestock-crop economies. He borrowed components from these systems; thus his crop matrix included peas, cabbages and potatoes together with turnips and cereal crops.

Milne's map (Fig.3:1) suggests that grassland was also an important land-use component in the Metropolitan Margins. Large inputs of dung and coal ashes were matched by the high yields characteristic of grassland management in this district where, as Malcolm observed, "quality and quantity are material objects,"¹⁰ Hay was in great demand for the draught horses of the Metropolis and while Middlesex was pre-eminent in grass production for London, in north Surrey it was successfully grown to give up to three harvests in a season on the poorly drained, low-lying patches of London Clay and in the Wandle valley (Fig.3:1).

Some of the products of hayfield and market or farming garden found their way to the urban cowhouses which, located at the limits of the urban area, supplied South London with milk. The cowkeepers represented a more intensive agricultural system than even the market gardeners, for they used a minimal amount of land, buying in the bulk of their feedstuffs. Middleton stated in 1798 that there were 619 cattle kept in north Surrey cow houses compared with 7,200 in Middlesex, a comment on the fact that until 1800, the population of London was concentrated on the north bank of the Thames.¹¹ The cowkeepers of Surrey were found in South Lambeth, near Kennington Bridge, Coldharbour Lane (Brixton), Peckham, Peckham Rye, Newington and Camberwell. They were interested in the cows solely as productive units. Few bred their own stock but preferred to purchase animals from Staffordshire, Lancashire and Yorkshire, whence they were brought south to be sold at Islington and Kingston fairs. The cows were bought when three years old and in calf, the most favoured breed being the Holderness with its high milk yields and good quality meat, for its progeny could therefore be easily sold

off at between one and three years of age.¹² About ten bulls were kept to every three hundred cows. The cows were fed on turnips, hay and distillers' grains during the winter months, while from May to September their diet consisted of grass, tares, rye and cabbages. During each day, the animals were fed three times and milked twice by the retail milk dealers, whom Middleton alleged, not infrequently adulterated the milk.¹³

Every cowhouse is provided with a milk room and this room is mostly furnished with a pump, to which the retail dealers apply in rotation, not secretly, before any person that may be standing by they pump water into the milk vessels a considerable cowkeeper in Surrey has a pump of this kind which goes by the name of the famous Black cow (from the circumstances of its being painted black) and is said to yield more than all the rest put together.

Whilst some market gardeners were also cowkeepers, this form of livestock husbandry was not usually integrated with arable farming. The cowkeeper sometimes owned or rented a few fields to supply him with hay and in which occasionally to graze his stock, but for most of the year his animals were stall-fed and thus demands on land were minimal. The effect of the cowkeepers on the agricultural land-use pattern was small, although they represented a market for fodder crops and vegetables which were not suitable for human consumption.

Intensive though it was, cowkeeping was surpassed by the brewing, distilling and starch making industries, fattening livestock on their by-products. These "urban farming" systems making little or no demands upon land, thus represented the ultimate impact of the town upon agricultural practice. The industries, themselves tied to the town they served, produced the bulk of the livestock foodstuffs in their by-products. Land and labour were the most costly factors of production in the vicinity of London; but for these enterprises land had ceased to be of any significance. James and Malcolm estimated that between 11,000 and 12,000 pigs, together with several thousand oxen, were fattened annually in association with these industries.¹⁴ The by-products fed to the animals consisted of distillers' grains which were the spent grains left after the infusion of the barley and the malt, together with the wash which was produced after the distilling of the spirits. The

brewery waste was spent grains, while that from the starch yards was a wash of little value as feed, unless peas and beans were added to it. The liquid nature of these materials made their transport difficult and although some was purchased by cowkeepers and farms engaged in fattening oxen and pigs, by far the greatest proportion was used at source, in the fattening yards developed by the industries themselves. The oxen fattened were principally Welsh and Herefordshire, bought at Kingston upon Thames in September and kept for fourteen to sixteen months, prior to their sale. The pigs were chiefly bought from Buckinghamshire, Shropshire and the East Riding of Yorkshire when fifteen to sixteen months old and kept for eighteen to twenty four weeks, before being sent to the butcher. Brewing and distilling were chiefly carried on from October to May, since warm weather was not desirable for the fermentation or malting processes. Thus, the availability of fodder coincided with the period of the agricultural year, when other feed was less abundant. For three quarters of the year, the breweries and distilleries might be considered low-cost producers. When they had to purchase fodder, principally hay, it was readily available. The methods of production resembled modern forms of stock rearing:¹⁵

....they have erected a very large and extensive distillery, and almost circumscribing their premises, a range of houses have been built of about six hundred feet in length, by thirty-two feet in width for the oxen ... separate stalls two rows head to head ... a wooden trellis or grating to keep the animals from the pavement, the soil is drawn out from under the grating.

The distribution of these centres of intensive stock production was governed by that of the larger breweries, distilleries and starch yards, which found locations at the urban fringe most convenient. In north Surrey, these industries were concentrated in Lambeth, Battersea and Wandsworth.¹⁶

Within the Metropolitan Margins at 1800, the interaction between town and country produced a gradient of costs of agricultural production, which rose rapidly with proximity to London. The agricultural response to this can be measured in intensity of

land-use, associated with which were varying levels of inputs and transport costs. Land-use intensity was the common denominator; the farming gardener made less intensive use than the market gardener of a larger area, while the cowkeeper or brewer made very small demands on the land area, but used it very efficiently. The significance of soil differences cannot be wholly disregarded in this district, but location vis à vis London was the principal determinant of land-use in 1800.

The Claylands.

The clays of Surrey are similar in their physical characteristics, being difficult to work, expensive to cultivate and, formerly, much in need of drainage. In 1800, however, the agriculture followed on the London and Weald clays was sufficiently different to warrant separate consideration here.

The London Clay.

The soils of this district were, "in many places wet, in all cold, sour and hungry," but it enjoyed locational advantages which were not shared by the other heavy soil districts of the county.¹⁷ The delimitation of the boundaries of this region are not straightforward. In essence, it was a transitional zone between the systems of high intensity associated with the mixing of urban and rural influences and the less intensive agricultural practices of rural Surrey. To the north, the London clay constituted a part of the Metropolitan Margins; the boundary of geological outcrop and agricultural system were not coincident. The gradient of intensity, sloping away from the Metropolis, can be extended beyond the Metropolitan Margins, on to the remainder of the London clay. Malcolm provides some clues to the location of a break-point in this gradient and hence, to the approximate position of a boundary, when he stated that London dung could be transported ten to twelve miles, and that up to twelve to fourteen miles turnips were largely bought by Surrey and Middlesex cowkeepers.¹⁸ These geographical limits are supported by changes in

agricultural practice. Thus at Wimbledon, the farming gardeners were left behind and less intensive systems predominated. To the south, the delimitation of a boundary based upon any analysis of statistics collected on a parish basis, such as the 1801 Crop Returns, is complicated by the occurrence of chalk and Tertiary sands, which form a light soil component in those parishes fringing the dip-slope of the North Downs.

One important respect in which this district might be contrasted with the Metropolitan Margins, was in the integration of the arable and livestock sectors. Cattle and sheep were fattened for the London markets, the sheep especially being produced in a system of high intensity known as "house-lamb" production. Great pains were taken to ensure that these animals were well cared for, in order that they might be ready for market as early as possible, when prices were high. During December, twice the normal price was paid for them; thus breeds which lambed early, very often Dorset, were selected.¹⁹ According to Middleton, even when lambing took place as early as Michaelmas, only about one in three lambs were ready at the time when they could command the highest prices.²⁰ The ewes were bought, "at the Michaelmas Weyhill fair, to which they come, full of lamb, from Devonshire and the adjoining counties."²¹ Ewes and lambs were the objects of especial care. They were housed in warm, well littered houses, each lamb in a separate coop.²² The ewes were normally fed on rye, tares and hay, but when giving suck, their diet was augmented by the addition of grains, chaff, turnips, and oilcake. The lambs were fed with some chalk mixed with oats or wheat.²³ This district was not characterized by high costs at 1800. The location of this intensive system here can best be explained as a way of profiting from proximity to London. Nearer to the Metropolis, the high cost of land precluded this activity, which required land both for housing the animals and producing their feed. On the other hand, the transport of the lambs to market was a cost factor which, at this date, operated against production at a distance from the metropolis. This favoured the rearing of house lambs in the Home Counties rather than in those areas which provided the ewes, although

at the turn of the century, there is evidence which suggests that the pattern was by no means stable. In 1794 James and Malcolm noted the importance of house lambs on the London clay, especially in Walton on Thames, Esher and Ewell. Eleven years later according to Malcolm, these areas, "were formerly famed for their house-lambs."²⁴ One reason for this change may have been improved transport facilities, although the turnpike system was not much changed at this time and its use involved the payment of tolls, which added to rather than reduced, transport costs. A more likely explanation is that the growing demands of the Metropolis for fodder crops induced farmers in this part of Surrey to sell off the feed which they had formerly used for house-lambs. This was the beginning of changes which subsequently made this district primarily one of fodder production for the London market.

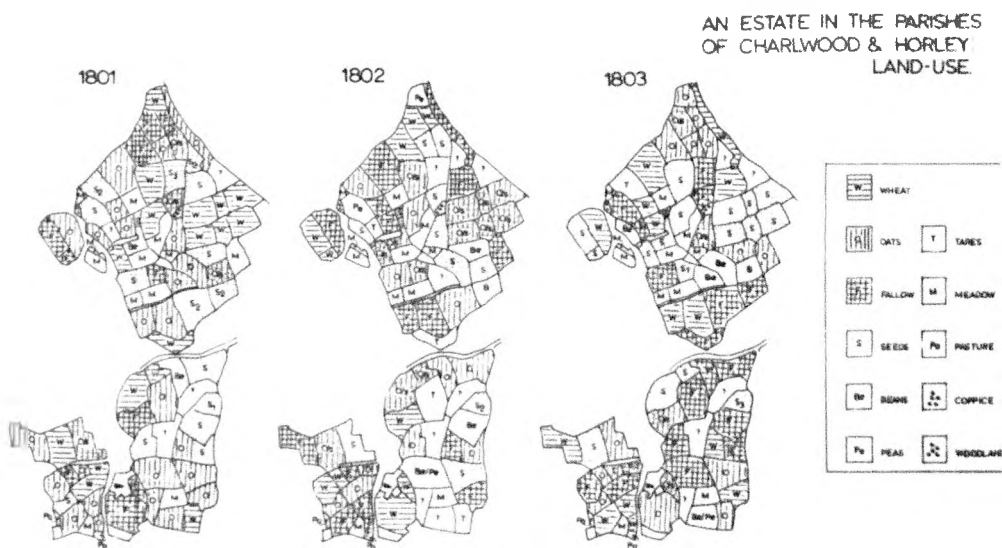
Farm leases often contained clauses whereby the tenant had to pay a considerable sum of money for straw sold off; thus the lease of a farm in Chertsey stated that the tenant, "had to pay for every load of straw (wheat, barley, oat, tare, bean, peas) taken off the premises at forty shillings a load."²⁵ Landowners recognized the temptation placed in the path of the London clay farmers. However, arable farming was still primarily engaged in providing support for the livestock sector, in the form of a range of feed crops which, together with the animals, prepared the land for cereals, principally wheat and oats. The following rotation summarizes the cropping pattern and points to the integration of livestock and arable farming.

1. Fallow with dung for turnips, folded off.
2. Barley and seeds.
3. Clover sown then folded off.
4. Wheat.
5. Oats.
6. Peas.
7. Tares.
8. Bastard fallow for wheat.²⁶

The Weald Clay.

Of the agricultural regions distinguishable at about 1800, the Weald clay possessed the greatest degree of unity. This homogeneity lay in its backwardness, a surprising feature when London lay only thirty to forty miles away. The Wealden farmer was beset by many problems, not least of which was that of the deep-rutted roads, sometimes impassable after rain, which placed him further from his markets than measured distance alone might suggest. Another problem was the soil itself, which, while it is not uniform in character, the clay content tending to decrease westwards as the sand content rises, is generally deficient in lime, difficult to work both in dry and wet conditions and often in need of drainage.²⁷ The importance of heavy dressings of lime was well recognized. Some farmers applied chalk to the soil without prior treatment, while others either purchased lime from the kilns at the foot of the Downs escarpment, or produced it themselves. In either case the application of lime involved transport costs, which the Wealden farmer could ill afford. Most of the Weald clay lay undrained, which meant that livestock were exposed to disease in damp seasons, "...foot rot prevails to a great excess in the parishes of Horley, Burstow, Charlwood and indeed all along that line of country... sheep are scarcely free from it for any length of time."²⁸ Tenants working the small farms of this district, often lacked the capital to effect improvements such as liming or drainage, -- a situation which was exacerbated by the lack of security associated with the yearly tenancies commonly found here, and the absence at this date of compensatory clauses in farm leases.

The Crop Returns (Figs. 3:2; 3:3), suggest that the principal crops were oats and wheat, the whole area falling into a two-crop combination region of these cereals (Fig.3:5). The Returns indicate that, apart from some beans and peas, few non-cereal fodder crops were grown. In fact beans never accounted for more than 10% of the recorded acreage. The Returns do not provide a comprehensive crop survey, and two important constituents of Weald clay agriculture about which they are silent are sown grasses and bare fallow. On the northern clays,



Original map carries no scale.

FIG. 3:4.

Source: Surrey Record Office. Ph.58 a-h.

bare fallow was in fact being supplanted by feed crops or by the shorter bastard fallow. In the light soil districts the turnip was the principal crop, which obviated the need for fallowing, but even in this area bare fallow remained an important constituent of farming practice. Despite the admonitions of many writers since the end of the eighteenth century the "round-frocked" farmer of the Weald still regarded a bare fallow as the cheapest and most effective way of cleansing the land of weeds in preparation for the all important wheat. The continued use of a fallow was not necessarily a sign of backwardness, contemporary opinion was divided and even Stevenson considered that, "doing away with it is hazardous in the extreme."²⁹ A series of maps of the Christ's Hospital Estate in Horley and Charlwood (Fig.3:4) showing detailed land-use for the years 1801-3, supports the picture described by the Reporters to the Board of Agriculture and the Crop Returns. The recurring feature of the rotations suggested by the maps are wheat, oats and fallow or fallow for wheat, oats, and seeds. The seeds (clover), usually followed oats with which they had been intersown, being left for a two or three year ley. A limited range of fodder crops were grown, testimony to the small numbers of livestock kept in this district.

By the contemporary yardstick of agricultural improvement, (the integration of the livestock and arable sectors), the Weald was backward indeed. Some farmers wintered cattle bought lean in the autumn. A few had found the Romney Marsh sheep useful on their damp soils but the impression given by the Board of Agriculture Reporters is of an area deficient in livestock. Oats and clover were chiefly grown to feed the large numbers of horses needed to cultivate the heavy lands. Above all else, the Weald clay farms were wheat producers. The high cereal prices associated with the Napoleonic Wars resulted in an even greater acreage under wheat than was normal and gave to this area a shortlived prosperity, which induced some landowners to raise their rents. Stevenson attempted to explain the importance

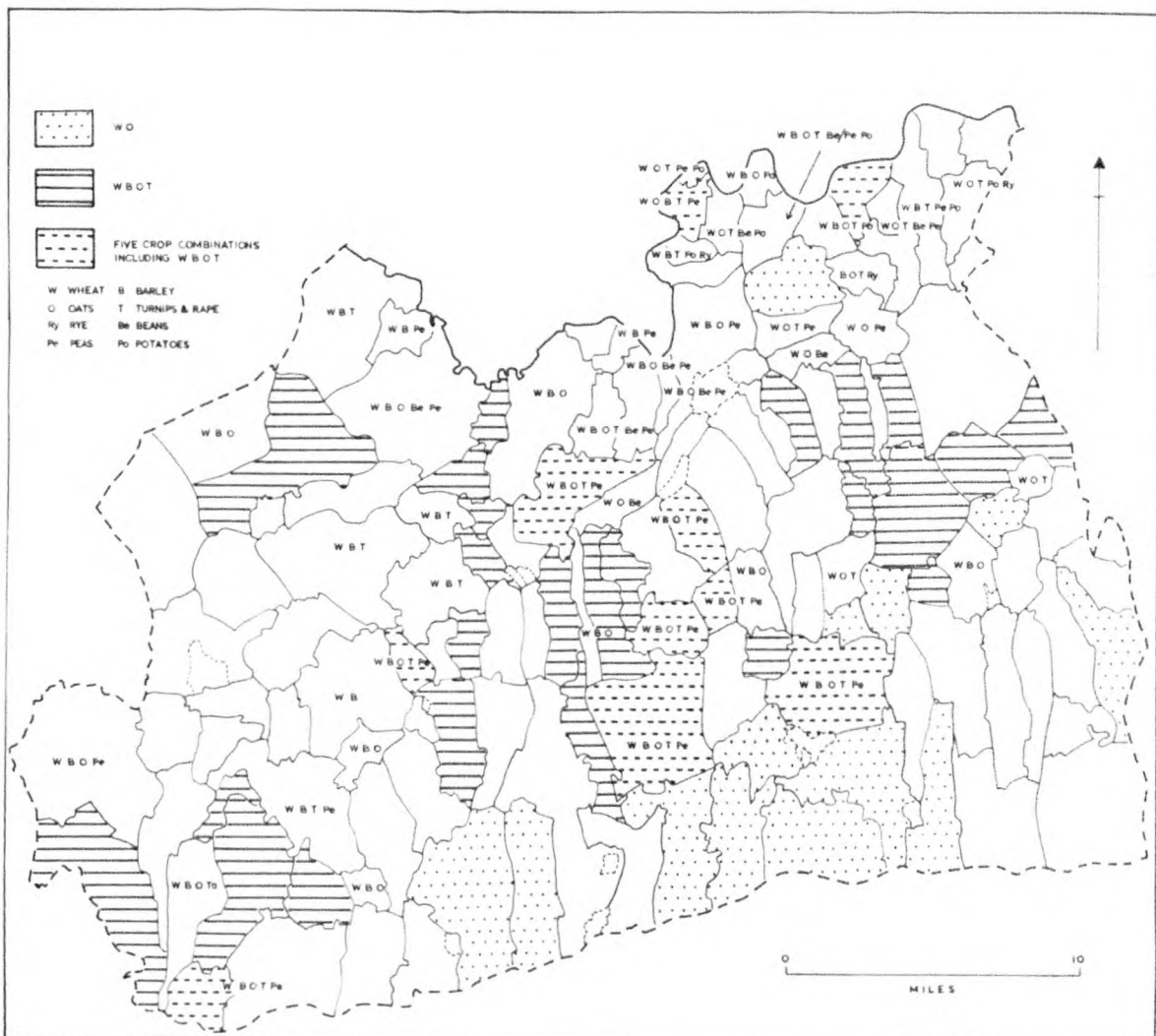


FIG. 3:5. Crop Combination Regions, 1801.

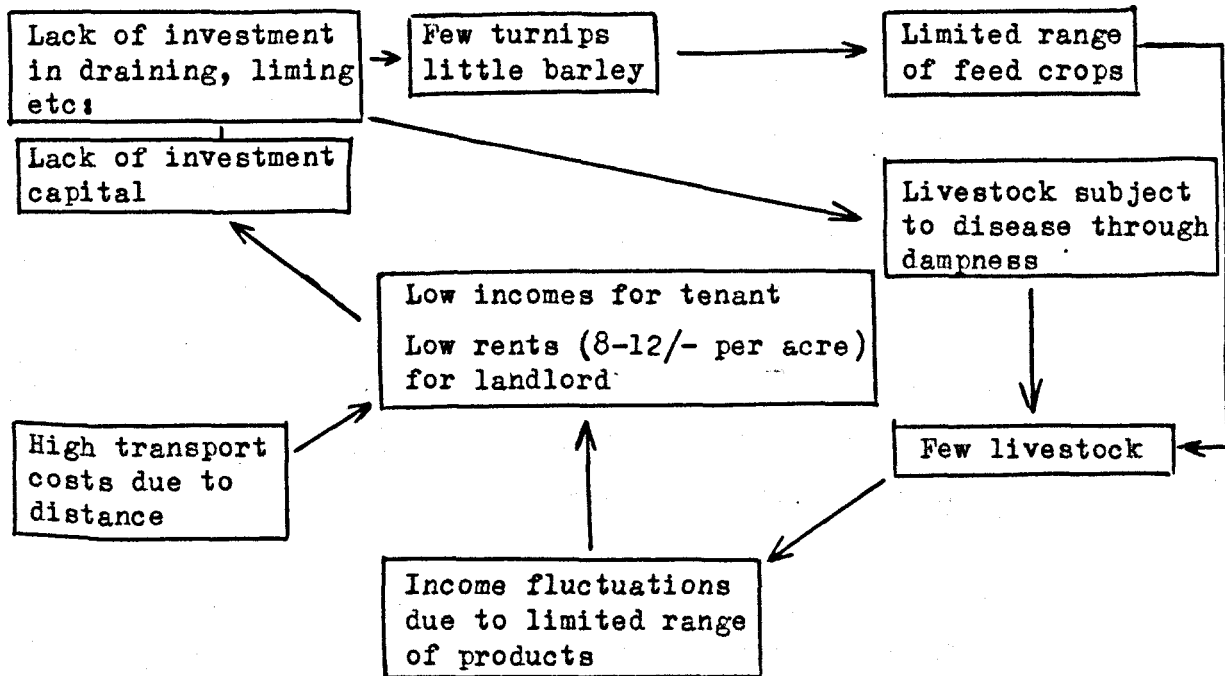
Source: The 1801 Crop Returns for Surrey, P.R.O. H.O. 67.24, 67.4.

of this crop:³⁰

In the first place, the soil of the Weald, or vale land, which forms no inconsiderable part of the county is of such a nature as to require frequent summer fallowing; where this is necessary, the farmer must have recourse to wheat, in order to pay him for the want of a crop, and for the great expense that he has incurred; and as the lands which most require a summer fallow, viz. strong wet clay are peculiarly adapted for wheat, the farmer is led also by this consideration to sow this grain very extensively.

The agricultural pattern on the London Clay demonstrated that the physical disadvantages of the heavy lands did not restrict the flexibility or intensity of agricultural activities to any great degree, at least where transport costs were low. The converse might be true of the Weald Clay. Although the greater transport costs which faced the Weald Clay farmer precluded him from adopting certain systems, where large volumes of low value produce were involved, distance from the Metropolis did not wholly account for the limited range of enterprises and the general backwardness of the region. Contemporary writers suggest that Wealden farmers and landowners were less aware of the innovations taking place in agriculture than their contemporaries to the north.

TABLE 1. The vicious circle of Weald Clay farming at 1800.



This view is supported by the agricultural systems found in the region

and by the absence of "good husbandry" conditions in leases; several contain covenants which allowed three successive crops of corn to be taken from the same land.³¹ The road to improvement through diversity and the integration of crops and livestock waited upon investment in land improvement, such as land drainage, as well as improved accessibility. Tenant farmer and landlord alike were in a vicious circle, from which even the high prices of the Napoleonic Wars offered little prospect of escape.

The Light Lands.

The Chalk, Greensand and Bagshot Sands lay between the Weald and the Metropolitan Margins, both in respect of geographical location and intensity of agriculture. The distribution of the wheat, oats, barley, turnips crop combination (Fig.3:5) suggests that the Norfolk-four course, linked to large flocks of sheep, underpinned the rotations of the light soils of the county. While some elements of the land-use systems were oriented specifically to the London market, agricultural practice was generally in accord at this time with that of other light lands such as those of Norfolk, South Lincolnshire, Wiltshire and Hampshire.³²

The Chalklands.

On these thin, sometimes flinty soils the sheepfold formed the basis of an integrated farming system. In criticizing the use of the term "sheep and corn" to describe farming in these districts, Jones rightly draws attention to the need to consider: "the exact objects of sheep and grain production and the relative importance of the two groups of products."³³ On the North Downs, the benefits of sheep for the arable sector were appreciated; the value of their wool was not disregarded, but in a district comparatively near to London, meat was the primary objective.³⁴ Compared with the chalkland farmers of northern or south central England, transport costs were low, fat lambs could be sent to London in "light four wheeled carriages" yielding a greater margin of profit than was possible elsewhere.³⁵ It is therefore, understandable, that the North Downs farmer laid greater stress on sheep than on corn. The Wiltshire, Somerset, Dorset and South Downs breeds were

pre-eminent, their main advantage being their tendency to lamb early, thus allowing farmers to catch the higher prices of late spring. The usual practice, as described by Stevenson, made maximum use of the available feed, for the sheep were confined to a limited area with hurdles.³⁶ The stocking ratio was generally three to four sheep per hurdle which gave a high density per acre. The early lambing breeds found especial favour with the farmers of this district who produced "grass lambs" which, though a less intensive system than the breeding of "house-lambs", was intended to produce lambs ready for market in April, before the bulk of the seasons' lambs were ready for sale. The ewes and their offspring were fed on turnips and oil-cake. They were not housed, although Stevenson records that at least one farmer gave his stock protection, by using hurdles wattled with straw.³⁷ The differences between the methods and the location of grass and house-lamb production, can be seen as an extension of the intensity gradient, declining with distance from the Metropolis.

The value of sheep as a manure source was not ignored. In common with the other southern chalklands, they were folded on the Downs during the day and on the arable land at night. Stevenson suggested that this practice might have an adverse effect on the Downs swards, as they tended to be overgrazed and a disproportionate amount of manure was returned to their soils, most of it going to the arable land.³⁸ Evidence presented in a dispute over grazing rights at Effingham, at the end of the eighteenth century, suggests that there was also competition between the enclosed and unenclosed arable land, for the benefits of folding:³⁹

....the way of manuring the common field is principally by folding sheep there or just bringing them in at night, but the farmers do not do the latter because the inclosed land would be fed without receiving the benefit of dressing.

The Downs grassland provided only a small part of the sheepfeed required, and, other than cereals, the arable sector was oriented to provide a range of fodder crops which included, turnips, peas, sown grasses and tares. In considering the rotations found on the chalk soils, a distinction must be made between the land held in severalty

and that held in common. There was a considerable acreage of subdivided arable on the North Downs (Fig.2:1). In the open-fields, the usual rotation was: turnips, barley, clover, wheat, oats, turnips, wheat, ~~W~~aves (folded). This rotation involved a breach of "the leading principle upon which the most judicious and successful course of cropping in the county of Surrey is grounded, inasmuch as two corn crops were sown in succession."⁴⁰ However, the oats were destined for feed and were valued as a cleansing crop, preparing the soil for the turnips which followed.

The rotations followed on the enclosed land differed in degree rather than in kind from those in the open-fields. Clover was being grown on the unenclosed arable, but since this crop and still more, sainfoin, required a ley to make best use of them, sown grasses were relegated to a less significant role than on the enclosed land. A number of downland farms included the heavy, dull red soil of the clay-with-flints, which occasionally tops the upper Chalk; where it was not left as woodland it produced wheat, oats and tares for the sheepfold. Chalkland rotations were clearly oriented towards fodder crop production, but not quite all of this was for home consumption. Much of the sainfoin was grown for sale. The cost of transporting most fodder crops to London from the North Downs made this an unprofitable enterprise for all but sainfoin. This crop could only be grown successfully on Chalk soils, and commanded high enough prices to overcome the cost of moving it over distances of up to twenty miles. The 1801 Crop Returns (Fig.3:2), suggest that wheat, barley and oats were of almost equal importance, although wheat acreages were slightly higher than those of barley, which occupied a little more land than oats. With a variety of cereal and fodder crops and an integrated livestock/arable system, the chalklands of Surrey were well prepared for the vagaries of price and season.

The Lower Greensand.

Correspondence to the Norfolk system was more in evidence in the south-west on the "sandy loams" than on the chalk. Wheat, barley and turnips accounted for similar proportions of the recorded acreage in 1801. These crops each constituted 20-30% of the recorded acreage. Rye was a useful addition to the turnips and

sown grasses for sheepfeed, although it was rarely significant enough to figure in the crop combinations, "...in some seasons there is a great breadth of it, especially on the sandy loams."⁴¹ Rye was often sown on the poorest and most acidic soils, on those subject to drought, and in parishes with limited open grazing, such as the strip parishes which run from North Downs to Weald Clay. The fodder crops were fed off by the Southdown sheep kept to provide fat lambs, or by calves fattened for veal for the Metropolis. In most respects the agricultural pattern was similar to that described for the North Downs. The principal difference was the absence of the intensive components (grass lambs and sainfoin) which greater proximity to London engendered on the Chalklands. The Greensand districts were still too far removed from London, for it to influence the agricultural pattern in any specific way.

The Bagshot Sands.

This district of "spewey sands" stood out among the light lands, because of its low agricultural potential. In fact, at the beginning of the nineteenth century, much of it was unreclaimed heathland, although attempts were being made under the stimulus of high prices to bring some of these "deaf and duffy" soils into cultivation. After paring and burning, turnips were usually the first crop taken. These were folded off and followed by barley, clover and wheat. On the patches of better alluvial soil fringing the heaths, the lightland sheep, fodder crops, corn system was followed, associated with the W O B T crop combination (Fig.3:5). The sandy alluvium produced a soil favourable to the cultivation of carrots. Like sainfoin, this high value crop could bear the cost of transport to London and was organized by "carrot merchants" who bought the crop on the farms. In most other respects, distance from the Metropolis combined with the poorness of the soils to make this district comparatively unaffected by the "spirit of improvement," which was in evidence elsewhere on the light lands of Surrey.

¹This term is used by Thomas Milne to describe the small parks in which the larger suburban villas stood. For a discussion of Milne's map see:

G.B.G.Bull, "Thomas Milne's land utilization map of the London area in 1800," Geographical Journal, CXXII, (1956).

²Malcolm, Compendium of Modern Husbandry, p.390.

Stevenson, General View, p.414.

Henry Hunter, A History of London and its Environs (London:1811).

³John Middleton described the Surrey market gardens in:

J.Middleton, A General View of the Agriculture of Middlesex (London: 1811).

⁴Hall and Russell, Agriculture and Soils, p.69.

It is difficult to establish the former extent of the brickearth. A comparison of Mylne's geological map of 1856 with that of the Geological Survey made at the end of the nineteenth century suggests a diminution in its extent. This is not surprising since brickearth was much sought after during these years of rapid suburban growth for brickmaking.

British Museum Map Room, Map of the Geology and Contours of London, 1856, 3484(1).

H.Dewey and C.E.N. Bromehead, Memoirs of the Geological Survey: the Geology of South London (London: 1921), p.21.

Malcolm refers to a field on a farm of his in Lambeth which had been, "previously dug out for brickearth and gravel."

Malcolm, Compendium of Modern Husbandry, p.260.

⁵Ibid, p.124.

⁶Stevenson, General View, p.456.

Lysons estimated that labour requirements in the Surrey market gardens were one man per acre during the summer season.

D.Lysons, The Environs of London, Vol. 1 (London: 1792), p.27.

⁷A.Young, "A Tour through Sussex," Annals of Agriculture, XXII, (1794), p.201.

⁸Malcolm, Compendium of Modern Husbandry, p.391.

⁹Ibid, p.471.

¹⁰ Ibid, p.31.

¹¹ Middleton, General View, p.337.

¹² Trow-Smith discusses the value of the Shorthorn cattle for the urban cowkeeper in:

R.Trow-Smith, A History of British Livestock Husbandry 1700-1900 (London: 1959), pp.182-185.

¹³ Middleton, General View, p.337.

¹⁴ W.James and J.Malcolm, "On the fattening of oxen and hogs by the distilleries," Annals of Agriculture, XXIII, (1795).

¹⁵ James and Malcolm, General View, p.31.

¹⁶ Matthias points out that there was an increase in the scale of operation of the brewing and distilling industries during the eighteenth century which made it more desirable to utilize the larger amounts of by-products produced. Stock fattening was also a useful additional source of income in the face of taxation or the effects of a bad year.

P.Matthias, "Agriculture and the brewing and distilling industries," Economic History Review, 2nd Series, V,(1952).

¹⁷ Malcolm, Compendium of Modern Husbandry, p.391.

¹⁸ Ibid, pp.391-392.

¹⁹ James and Malcolm, General View, p.29.

²⁰ Middleton, General View, p.357.

²¹ Stevenson, General View, p.534.

²² P.Foot, A General View of the Agriculture of Middlesex (London:1794).

²³ Stevenson considered that this was to remove the acidity of the stomach, Young's less plausible explanation for this practice was that it made the lambs white (sic).

Stevenson, General View, p.534.

A.Young, Annals of Agriculture, XXII, (1794), p.191.

²⁴ James and Malcolm, General View, p.29.

Malcolm, Compendium of Modern Husbandry, p.451.

²⁵ Guildford Muniment Room, 6/2/67.

²⁶ Malcolm, Compendium of Modern Husbandry, p.401.

²⁷ Hall and Russell, Agriculture and Soils, p.129.

²⁸ Malcolm, Compendium of Modern Husbandry, p.431.

²⁹ Stevenson, General View, p.169.

³⁰ Ibid, p.202.

³¹ See for example:

Guildford Muniment Room, Lease of Newdigate Place Farm, 1803,
86/20/13.

³² The crop combinations for 1801, c.1840 and 1870 were calculated using the formula:- $\sigma^2 = \frac{\sum d^2}{n}$.

D.Thomas, Agriculture in Wales during the Napoleonic Wars: a study in the geographical interpretation of historical sources. (Cardiff:1963).

J.Thirsk, "Suffolk farming in the nineteenth century,"
Suffolk Records Society, I, (1958).

Grigg, Agricultural Revolution in South Lincolnshire, pp.66-81.

³³ E.L.Jones, "Eighteenth century changes in Hampshire chalkland farming," Agricultural History Review, VIII, (1960).

³⁴ Farm accounts reveal that while wool provided a useful income, early lambs though more speculative, yielded greater returns.

See for example:

Surrey Record Office, Farm Expenses, Walton on the Hill, 1804-9.
62/1/69.

³⁵ Middleton, General View, p.358.

³⁶ Stevenson, General View, p.531.

³⁷ Ibid, p.535.

³⁸ Ibid, p.482.

³⁹ Surrey Record Office, Pollen Estate Papers, Acc.218, Box 596.

⁴⁰ Stevenson, General View, p.179.

⁴¹ Ibid, p.180.

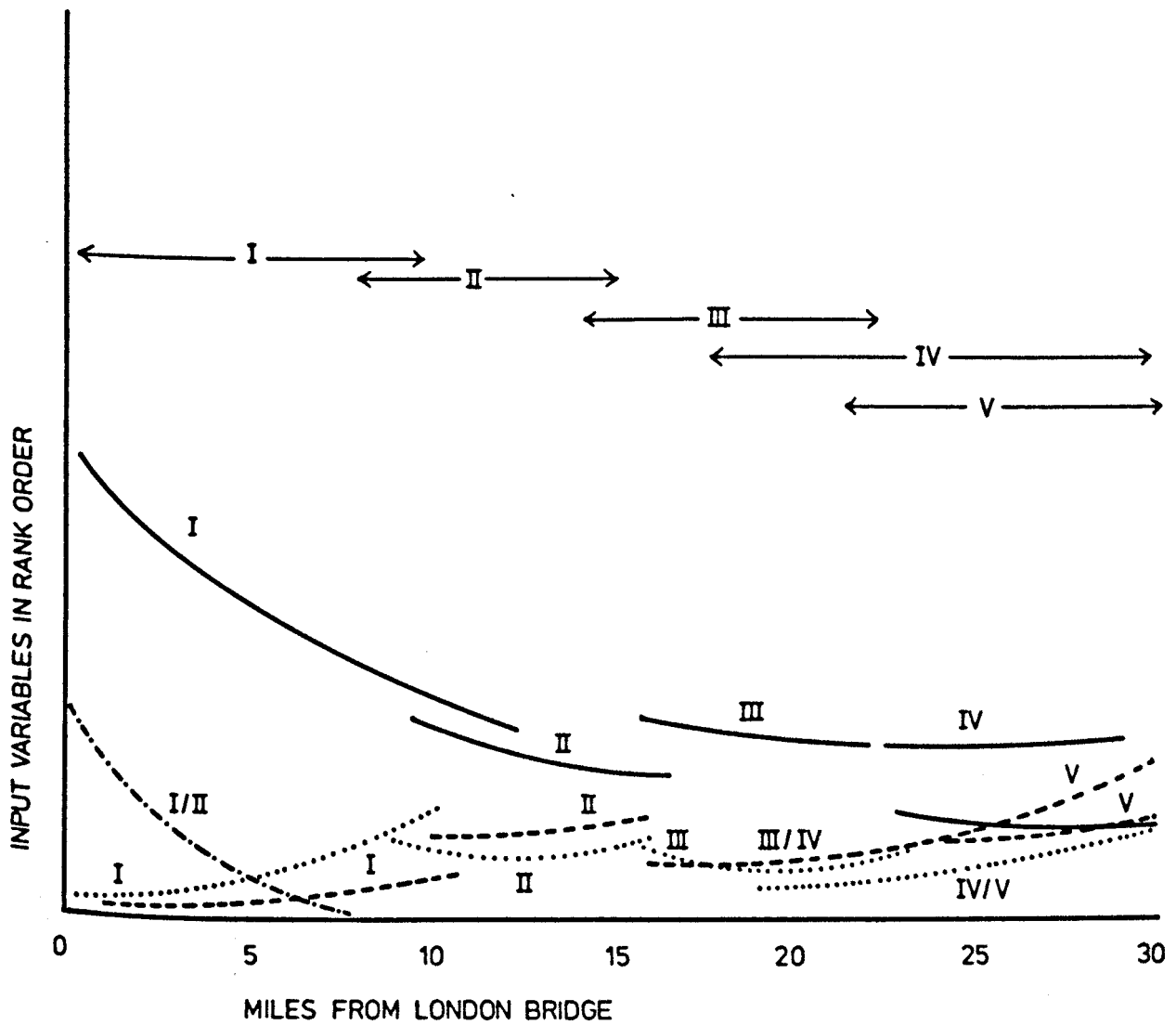
CHAPTER IV

TOWN AND COUNTRY: SPATIAL CONSIDERATIONS

Distance from London constitutes a vitally important theme in the study of town and country in Surrey. Increased proximity to the Metropolis was accompanied by land-use competition, which resulted in a gradient of land values away from the capital; the competition for labour was also greatest in the immediate environs of London, decreasing rapidly with distance from it. It has been shown that these gradients affected agricultural costs, decision making and hence the pattern of land-use (see supra. pp.32-34). High costs were accompanied by intensive methods of production, which declined in importance as London's ability to compete for land and labour waned.

Distance and transport costs.

Since London was the sole market for almost all of the farms of Surrey, distance to it, expressed in transport costs, might be considered a significant variable in agricultural costs. Certainly for von Thunen and others who have developed models of agricultural land-use around one or more centres of consumption, transport costs have been a major consideration.¹ It has been established (see supra.p.6), that at 1800, suburban South London and the towns of Surrey were not growing rapidly. In this respect the analogy between von Thunen's "Isolated State" and Surrey holds true. von Thunen states that transport costs to his single market increased in almost direct proportion to distance from it, in considering the pattern of agricultural land-use in the Metropolitan Margins, it was initially suggested that such a linear relationship between distance and transport costs might be assumed (see supra.p.32). The subsequent examination of the associations of crops and livestock and the intensity of their production, (the crop and intensity theories of von Thunen's analysis), suggests a modification of this assumption (Fig.4:1), in some cases in favour of the curvilinear or stepped



- | | | |
|--------------------------|-------------|----------------------------|
| I METROPOLITAN MARGINS | ————— | LAND AND LABOUR COSTS |
| II LONDON CLAY | | TRANSPORT COSTS [DISTANCE] |
| III CHALKLANDS | ----- | " " [ACCESSIBILITY] |
| IV REMAINING LIGHT LANDS | - . - . - . | " " [PERISHABILITY] |
| V WEALD CLAY | | |

FIG. 4:1. Input variables and distance at 1800: a diagrammatic representation.

relationship advocated by Dunn.² However, the premises which induced Dunn to favour this relationship, namely the increasing rate of decline when economic rent is plotted against distance and the tapering effect of scale economies in transport costing need not necessarily have applied in Surrey.

The significance of transport costs varied with the way in which farm produce was transported and this was in turn dependent upon the agricultural system together with the scale of operation of the farm. For the light land farmer producing a limited quantity of grain, transport to market represented the partial usage of existing equipment, horses and labour. Farm accounts suggest that transport was a small part of total costs and mainly consisted of the purchase of fodder for horses, the payment of turnpike tolls and small sums paid for "holding the horses" at the London markets.³ It was only when the scale or the intensity of the enterprise was increased to the point where an additional waggon, team and man were needed that a significant increase in transport costs was likely.

The market gardener, producing considerable quantities of produce throughout the year and buying large amounts of manure, might well have found himself in this situation. Transportation costs would increase vertically, not because of distance, but because of the need to use a vehicle specifically to carry produce to market, they would then decrease until maximum usage was achieved. Thereafter, if output continued to rise, the purchase of a second waggon and team would produce a similar effect, slightly diminished since the extra cost was spread over a larger total output.⁴ The agricultural producer, who was increasing his production, would pass through a cyclic pattern of change in his transport costs, which would have a stepped appearance, regardless of distance. If distance is added to this equation, locations near to the market and manure source become more desirable, since they result in the more speedy maximization of the use of the transportation facilities and thereby minimize the costs of carriage. Some high value products

such as sainfoin and carrots were produced fifteen to twenty miles from London where the physical environment enabled large quantities to be grown at low cost (see supra. pp.51-52).⁵ Whereas given the transport facilities available in 1800, some perishable products of which salad crops and liquid milk are outstanding examples could be produced only in the vicinity of London if the risk of loss was to be minimized. Clearly, the importance of transport varied from crop to crop and between more and less intensive methods of production.

Not all farmers transported their products directly to London, some farm produce was sold in the local markets from whence the corn or livestock merchants then despatched it to the Metropolis. Direct costs to the producer were small, although the costs to the merchant were reflected in the price paid to the farmer. The merchant moving large quantities of produce could benefit from scale economies, increased distance would tend to give his transport costs a curvilinear form. Similar economies were possible for river and canal transport, which were well adapted to the movement of agricultural produce. Thus, market gardening was found on Thameside, at greater distances from London than would have been possible if road transport alone had been available.

Accessibility and transport costs.

Distance was only part of the transport cost variable, consideration must also be given to accessibility which, though partly a function of distance, also reflected in large measure the availability and quality of the transport network. The roads of Surrey varied considerably in their standards of construction and their state of repair. By 1800 the greater part of the turnpike system had been developed, its mileage being little different from the 282 miles recorded in 1821.⁶ Thirty-one years later, the total had only risen by ten miles (Fig.7:11).⁷ The main improvements in road communication had taken place during the eighteenth century; the application of the new methods of Macadam and Telford had scarcely begun, when railway competition eclipsed much of the

turnpike system. Moreover, even at their maximum development in terms of mileage, receipts and investment, the turnpike roads served only a small proportion of the county. If contemporary writers are to be believed, this was not necessarily a great disadvantage, as some stretches of turnpike road were little better in quality than roads maintained by the parish.

Road builders, improvers or parish surveyors were at the mercy of geology to a great extent, for the state of the roads depended upon the road-making materials which could be found in their vicinity. The roads of the Weald Clay district were considered the worst in the county. Malcolm wrote of a Wealden turnpike,⁸

....who would have believed that it was necessary within thirty miles of London to take a guide, and that with good horses we had much difficulty to ride six miles in four hours and yet that literally was the fact in going from Ockley to Rudgwick.

Weald Clay farmers found difficulty in carrying their produce to market or in bringing the much needed lime from the Downs in wet seasons, when their roads were often impassable. Arthur Young chronicled the impact of the construction of the Reigate to Horsham turnpike in 1756, following which rents were increased in its vicinity by 60%, "nor is there a gentleman in the county who does not acknowledge and date the prosperity of the country to this road."⁹ James Malcolm viewed the benefits of the turnpike with more apprehension, suggesting that the roads did not greatly increase accessibility, although they stimulated rent increases and gave rise to tolls where previously there had been none. Elsewhere in the county, the quality of the roads reflected the contrasts in road building potential between the clays, chalk and sands. Fuller considers, probably correctly, that the best conditions for a pre-Macadam road were a shallow soil and a hard permeable rock. These conditions were approached in Surrey only on the Chalk Downs and in a few isolated areas, as for example on the outcrop of Paludina limestone in the Weald Clay. The London Clay was a poor foundation for road building, for the roads which crossed it were heavily used

and consequently in poor condition:¹⁰

....many roads near the Metropolis as well as in the country are nearly impassable in winter ...in following the line of road down Balham Hill we find it in the summer deep in dust and in the winter as deep in mud and so it continues almost the whole way to Mitcham.

The light lands were more fortunate in their materials for road construction. Fuller considers that the Lower Greensand provided "some of the best roadstone in South-East England in the eighteenth and nineteenth centuries."¹¹ Contrasts in road surface and accessibility tended to underline regional variations in agriculture. The agricultural problems of the heavy clays for example were aggravated by the poor roads which served them, while the light lands, the principal areas of agricultural advance, were better served.

Although road transport was the principal form of communication, this was augmented to a limited extent by the Thames, the Wey Navigation and the Basingstoke canal. The Wandle was considered as a possible canal route, but its limited water resources were already in great demand for the industries of the Metropolitan fringe when William Jessop reported in 1799 that:¹²

...unless the owners of the mills can with propriety consent to the canal being supplied from some of the sources of the River Wandle, I am sorry to say that I must consider the canal as impossible.

Since John Rennie proposed as a costly alternative, the pumping of water from the Thames, attention turned to the Surrey Iron Railway project. The Wey navigation was opened in 1760, linking the Thames at Weybridge with south-west Surrey. In the early years of the nineteenth century it was mainly carrying, "...timber, planks, hoops, bark, flour and paper to London."¹³ The opening of the Basingstoke canal in 1796, which joins the Wey navigation at Byfleet, also encouraged the timber trade; according to Stevenson this was the principal item carried.¹⁴ The canal cut across the Bagshot Beds between Woking and Frimley, much of which was uncultivated commons and heaths, but there is no evidence that improved accessibility

led to an extension of cultivation locally. Undeniably, the canals reduced the cost of moving cereals to London in those areas close to them, and for those districts accessibility was greatly improved. The extent to which transport costs were reduced varied from place to place, and from one farm system to another. For some producers the canal would reduce the pressure on transport facilities, for others the transfer costs from road to canal would have limited the attraction of canal transport, while for yet other farms, the use of the alternative form would mean under utilization of equipment and labour.

Distance and the agricultural pattern.

Each agricultural system generated costs which were to a greater or lesser degree attributable to distance from London. In the districts nearest to the capital distance was of importance in relation to land values and the competition for labour; areas more remote were affected by poor accessibility. A diagrammatic representation of the changes in the rank-order of those input variables most affected by distance is advanced (Fig.4:1).

In the Metropolitan Margins land and labour costs together with perishability were all important although their significance decreased quite rapidly. Most of this district was within easy reach of London, except for its southern fringes, where it was served by the poor roads of the London clay. Since large volumes of produce and dung were involved in the market gardening activities which predominated, transport costs necessarily rose steeply with distance. Much of the explanation of the intensive forms of agricultural activity which were present here is found in the operation of these input variables.

The London clay zone overlapped the Metropolitan Margins in the intensity of its agricultural activities, which helped to offset both its comparatively high land values and the slightly inflated transport costs which are attributable to poor accessibility in

the parts of this district which lay closest to London. As the more integrated livestock-cropping systems began to predominate transport costs increased more slowly, although the poor quality of the roads made this region less accessible to its markets than it would otherwise have been.

The nature of the light lands agricultural economies produced transport costs which would have risen slowly with distance but in almost linear form. Only the more remote sections and the poor soils of the west were subject to significantly lower rents. For the most part the light land farming systems of Surrey were not dissimilar to those followed in other light soil districts more removed from the Metropolis, distance from London was of relatively little importance.

In contrast the Weald clay farmer paid the lowest rents in the county, but suffered most from poor accessibility inasmuch as his holding was both comparatively far from London and served by roads of poor quality. At a time when London's southern extensions were geographically limited, soil factors thus became of considerable importance. No part of Surrey was far enough from London for distance, by itself, to be a critical factor in determining the pattern of land-use. It was the alliance of poor accessibility and poor soil which proved a stumbling block to agricultural improvement in the more remote parts of Surrey at the opening of the nineteenth century. Transport and communications were the strands which, to a greater or lesser degree, bound town and country together. The absence of good communications between London and much of Surrey in 1800 goes a long way to explain the rural nature of the county. The developments in transport which were to occur later changed the relationships between town and country not least by strengthening the bonds between them.

- ¹Hall, von Thunen's Isolated State.
- ²Dunn, The Location of Agricultural Production.
- ³Surrey Record Office, Farm Expenses, Walton on the Hill, 1802-4, 62/1/69.
- ⁴Draught animals were kept specifically to transport market garden produce to London at Mortlake in the 1830's.
Great Britain, Public Record Office, Tithe Assistant Commissioners' Report, Mortlake, I.R.18, 10167.
- ⁵This finds parallels in more recent developments in the production of intensive crops, where physical factors have become of greater importance following developments in transport.
R.H.Best and R.M.Gasson, "The changing location of intensive crops," Studies in Rural Land-Use, No.6, (Wye College, 1966).
- ⁶Great Britain, Parliament, Parliamentary Papers, 1821, Vol.IV, Appendix 2, "Report of the Select Committee on Turnpike roads and Highways."
- ⁷Great Britain, Parliament, Parliamentary Papers, 1852, Vol.XLIX, "County Reports of the Secretary of State- Turnpike roads, No.2, Surrey."
- ⁸Malcolm, Compendium of Modern Husbandry, p.324.
- ⁹A.Young, "A Tour in Sussex," Annals of Agriculture, II, (1789), p.292.
- ¹⁰Malcolm, Compendium of Modern Husbandry, p.311.
- ¹¹G.J.Fuller, "The development of trans-Weald roads through Surrey and Sussex, 1700-1900," (unpublished Ph.D. Thesis, University of London, 1950).
- ¹²William Jessop, cited in:
C.E.Lee, "Early railways in Surrey," Transactions of the Newcomen Society, XXI, (1940-41), p.50.
- ¹³Stevenson, General View, p.557.
- ¹⁴Ibid.

PART II

THE METROPOLITAN MARGINS 1800-1870

V. URBAN DEVELOPMENT

Population

The process of suburban advance

The expanded towns

Transport and communications

VI. AGRICULTURAL CHANGE

Changing land values

Agricultural land-use

CHAPTER V
URBAN DEVELOPMENT

The years 1800-1870 saw radical changes in Surrey. At 1800, suburban South London was little more than a bridgehead settlement -- transport was poorly developed and even the towns nearest London remained primarily market and service centres of rural hinterlands. The definition of the Metropolitan Margins as that district within which rural/urban interaction was most active, whose boundary was marked by a distinct break in the gradient of land-use intensity, holds true for succeeding years, although the character of the region changed as a consequence of the rapid growth of suburbia, accompanied and at times aided by, a revolution in transport. For some of the towns this was a period of physical and functional change, during which links with the countryside were weakened. The agricultural area embraced by this district was enlarged, but while the growth of London produced a greater potential market for the products of Surrey farms, inflated land values and the development of the national rail network did not always work to the advantage of the farmer in the Metropolitan Margins. Dickens, writing in the 1860's, caught the dynamic personality of this district in "Our Mutual Friend."¹

The schools...were down in that district of the flat country tending to the Thames, where Kent and Surrey meet, and where the railways still bestride the market gardens that will soon die under them...they were in a neighbourhood which looked like a toy neighbourhood taken in blocks out of a box by a child of particularly incoherent mind, and set up anyhow; here, one side of a new street; there a huge solitary public-house facing nowhere; here another unfinished street already in ruins; there a church; here an immense new warehouse; there a dilapidated old country villa; there a medley of black ditch; sparkling cucumber frame, rank field, richly cultivated kitchen garden, brick viaduct, arch-spanned canal, and disorder of frowsiness and fog. As if the child had given the table a kick and gone to sleep.

von Thunen's economic model takes account of the development of smaller competing centres within the hinterland of "the town," but it does not allow for the expansion of the central settlement itself and the attendant changes in cropping practice and land-use

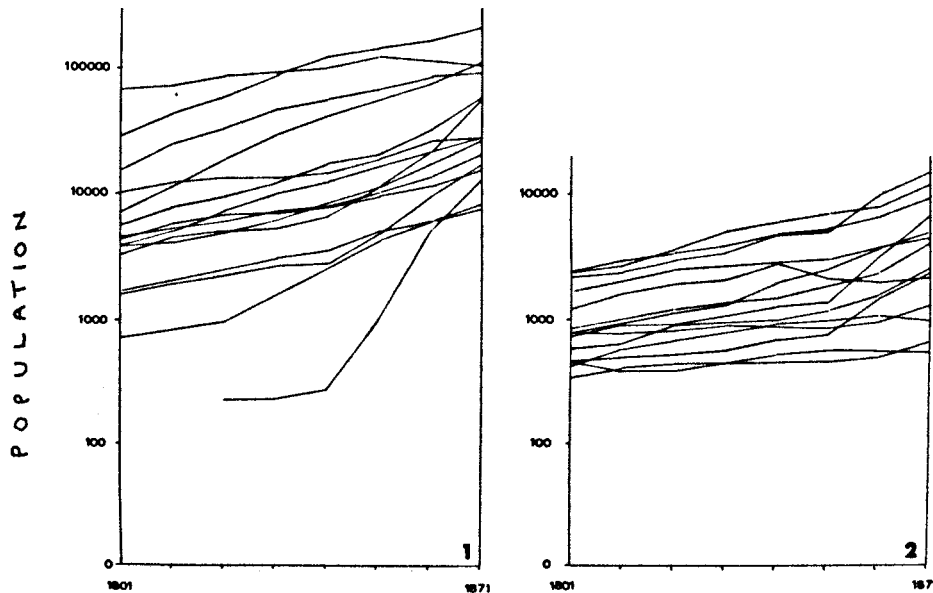


FIG. 5:1. Population change in the Metropolitan Margins, 1801-1871.

Note. The graphs show the form of population change for those parishes contained in the first two deciles according to the total amount of population change during this period. (see Chapter V. reference 3). Deciles 1 and 2 consisted almost entirely of those parishes included within the Metropolitan Margins at 1871.

intensity which such a development would bring. In North Surrey, suburban growth was the principal change which occurred after 1800. The changing pattern of agricultural land-use was in fact, largely associated with this physical growth.

Population

At 1800 the northern boundary of the Metropolitan Margins lay in the fringe of the continuously built-up areas of Southwark and North Lambeth. Succeeding years saw the southwards migration of this boundary. Within the areas already developed, increases in population were associated with greater housing densities rather than with suburban encroachment upon the countryside which was a feature of the rest of the Metropolitan Margins. Thus, the population of Southwark grew by 50,292 between 1801 and 1851, but the accommodation of this large number of people was chiefly accomplished through the short-term building or rebuilding lease which produced poor quality tenements built either in the gardens of existing properties or in place of them.² Elsewhere in north Surrey, such population growth was accompanied by suburban expansion and a sharp increase in land values which modified the cost-structure of agriculture (see infra pp108-10). The increases in population were such that, if the statistics for other parts of Surrey are to be shown in a comparable way, a logarithmic scale is necessary for the 'y' axis (Fig.5:1). The first and second deciles contain those parishes which experienced the greatest population increases between 1801 and 1871.³ The graphs are of a similar form, with steep gradients indicating rapid and massive expansion. For some places (Fig.5:1), growth was not much in evidence before 1851, an expression of the stability of the rural districts, which was broken during the last two inter-censal periods, as the railways brought increased accessibility and suburban development.⁴ The pace of population change serves to distinguish this district, almost wholly contained in the north of the county, from the remainder. Increases in population of 200% were not uncommon. The overall population density for

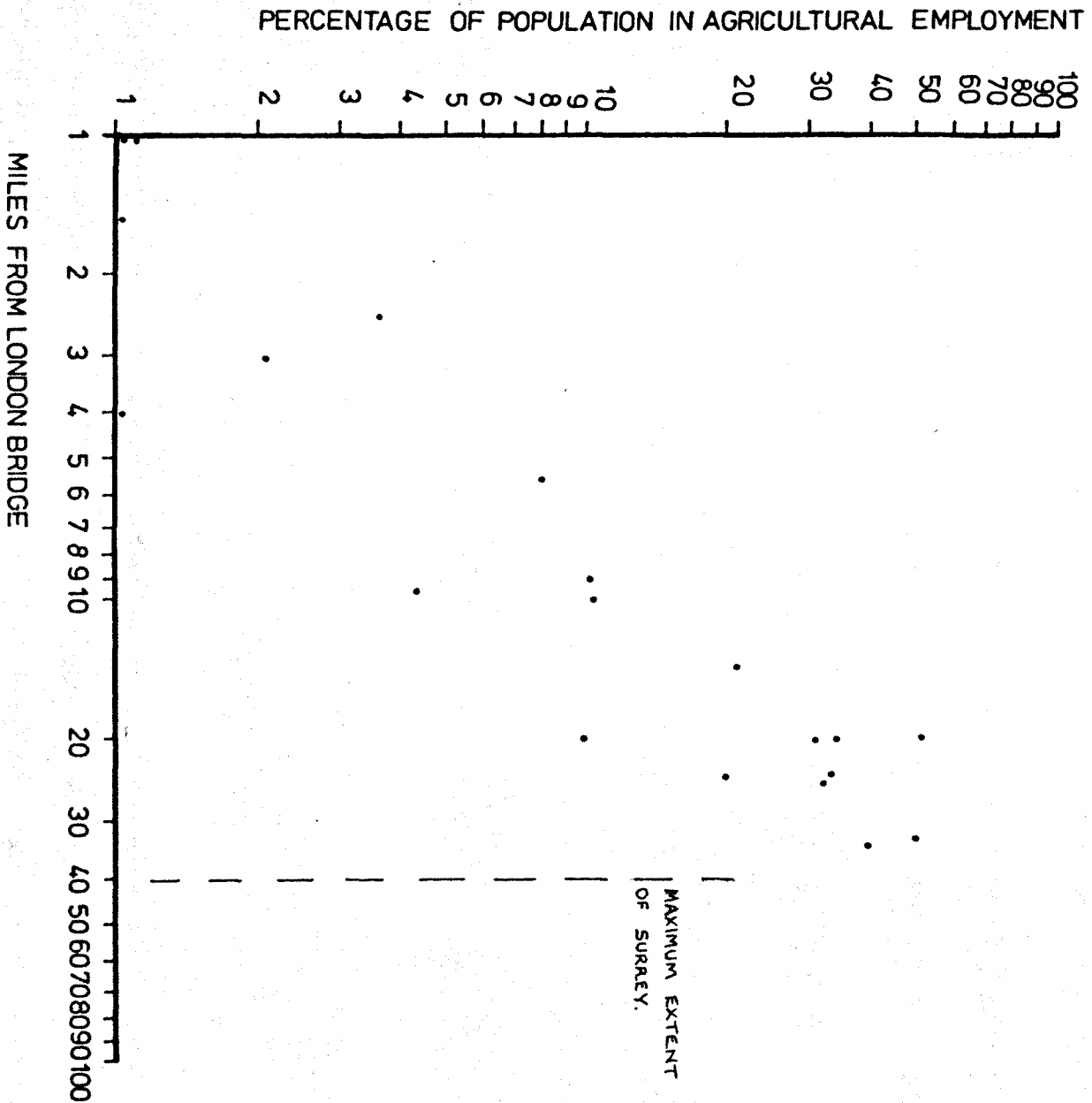


FIG.5:2. Population in agricultural employment in 1861. expressed as a percentage of the total employed population.

Lambeth, for instance, grew from 703 per 100 acres in 1801, to 5,238 in 1871. Even allowing for the ambiguities which surround the recording of numbers of houses before 1851 and the probable under-enumeration in 1801, the swelling of the built-up area, and the diminution in the extent of the countryside were remarkable.⁵ In 1801, 4,235 houses were recorded for Lambeth, in 1871, 31,137. During the period 1861-71 alone, 8,000 houses were added to the existing stock. Intensity of suburban development varied with distance from London. Lambeth, oriented from north to south, encompassed a variety of growth patterns, however, which were reflected in the distribution of its population. Contemporary maps show that the southern part of the parish, beyond Brixton, was little developed by 1871. The area between Kennington and Brixton on the other hand, was built over during these years and so received the greatest population increment.

The occupations of the people constitute a measure of the mixing of urban and rural influences associated with population increase in this area. At mid-century, the areal variation in agricultural employment (Fig.5:2) suggests that at distances of up to ten miles from London, that is to say, wholly within the Metropolitan Margins, less than 15% of males over twenty years of age worked on the land, although most labour intensive agricultural activities were located here. This situation was markedly different from that in places situated more than fifteen miles from London, where agriculture was of much greater importance as a source of employment. The inter-censal years 1851-61, saw a reduction in the agricultural labour force in these districts which lay within ten miles of London. Whilst on the one hand suburban development reduced the agricultural area, on the other the growth of the industries of the Metropolis, produced increased competition for the available labour force. There were other variations in occupational structure, which were



Ia. Stockwell Park Crescent (Nos. 32 - 40).



Ib. Hargwyne Street.
(Nos. 82 - 100).

The gracious individuality of Stockwell Park Crescent (1830-1840) contrasts with the infill development of Hargwyne Street (1870-1880), a comment on the changing social geography of the suburbs as population leapfrogged across the countryside.

related to distance from the capital, as Fletcher observed in 1844:⁶

...these out parishes (St. Mary, Rotherhithe; St. Mary, Bermondsey; St. Mary, Newington; and St. Mary, Lambeth;)... are the great commercial, manufacturing and artisan, labourer and mariner suburbs; having near the river, docks, warehouses, manufactories and places of business of every kind, with shops in the main streets, but behind these, the parts approaching nearest to the City and Borough are densely populated by dock labourers, coal whippers, weavers, watchmakers, shoemakers, bricklayers and their labourers and artisans of every kind... Next to this will be found, farther in the outskirts, the habitations of the clerks, book-keepers, shopmen and other middle-class dependents on the commercial and other establishments which do not afford them a domicile for the night, and outside these again, the more substantial houses of their employers, occupying the frontage of the main roads and streets, with inferior and sometimes very wretched locations in the rear.

The 1861 Census Enumerators' Books confirm that such variations in the occupational structure of the suburbs were then still in existence, although the currents of migration ensured that the social geography of the Metropolitan Margins was constantly changing.⁷ Stockwell Chapel Enumeration District was characterized by large numbers of clerks, builders and tradesmen.⁸ However, within this District lay Stockwell Private Road (later Landor Road), along which the large houses of several merchants had been erected amongst fields, which were to be built over during the following twenty years by houses of a very different character (plate 1). The pace of change was rapid and by 1870, many of the servant-keeping families had vacated Stockwell in favour of Streatham and Croydon. The outliers of this migration already existed in the large detached houses, which had been built along Tulse and Upper Tulse Hills.⁹ Related to these houses functionally were beads of terraced housing, occupied by gardeners and other servants who did not live with their employers. Thus, even on the fringe of the suburban area, there was a mixture of house types and occupational groupings, which defies easy generalization. Two major types of population movement operated here, but were of less importance elsewhere in Surrey. On the one hand, there was a large scale migration into the district; on the other, movements of people within the region, and on a smaller scale out of it to the suburban outliers at Woking or Redhill. The Metropolitan Margins was approximately

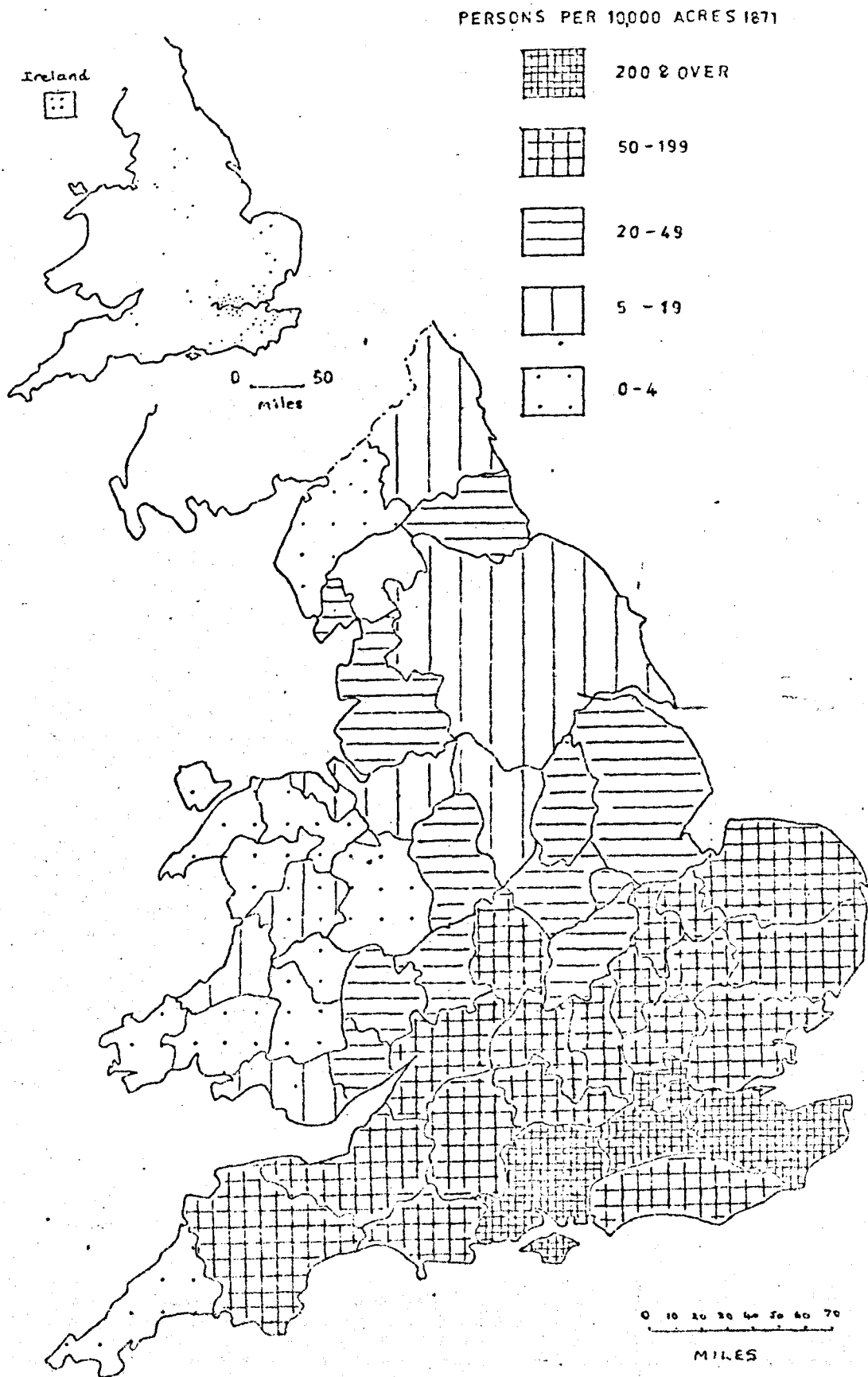


FIG. 5:3. SOURCE AREAS FOR THE IMMIGRANT POPULATION OF INTRA-METROPOLITAN SURREY, INSET MAP SHOWS BIRTHPLACES OF 10% SAMPLE FROM STOCKWELL CHAPEL ENUMERATION DISTRICT 1871

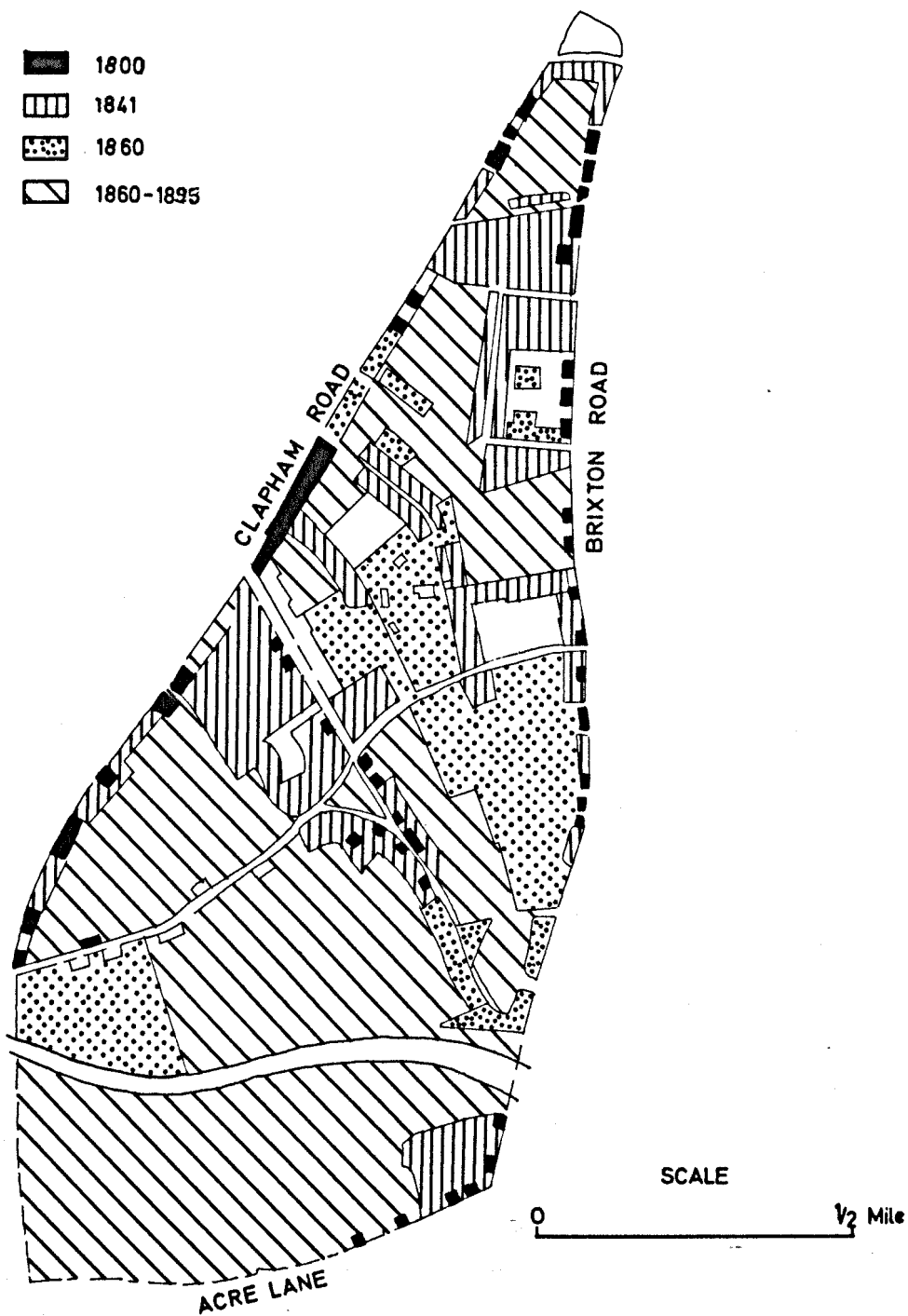


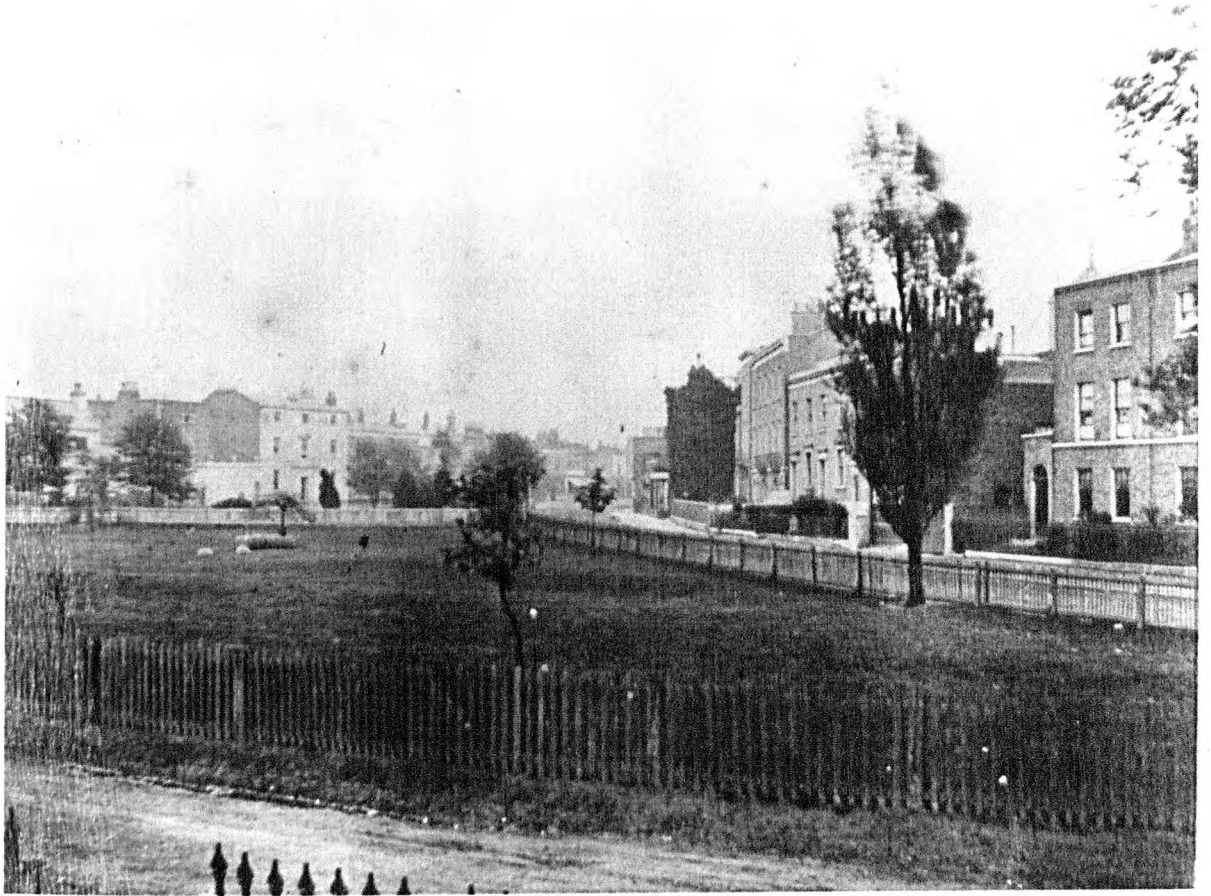
FIG. 5:4. Suburban growth in Stockwell, 1800-1895.

Sources: Ordnance Survey, One inch to one mile map, 'First Edition'; Minet Library. London and its environs, 1841. Map File; Mogg's map of London and its Environs, 1860, M.151; Ordnance Survey, Second Edition of the 25 inch Maps, Map File.

coincident with Intra-Metropolitan Surrey as defined in the 1871 Census of Population, where the immigrant population was 53.7% of the total, while only 15.7% of the people living in Extra-Metropolitan Surrey had been born outside it. In some parts of suburban Surrey, the immigrant population was a far greater proportion of the total. Thus in 1861, 75% and 90% respectively of the population of Stockwell Chapel and Upper Tulse Hill Enumeration Districts, had been born outside Surrey.¹⁰ Figure 5:3 points to the overwhelming importance of Intra-Metropolitan Middlesex and the Home Counties, as source areas for these large scale movements; they were geographically proximate and therefore more likely to supply population under conditions of short term migration.¹¹ Furthermore, Middlesex included districts, where physical and social changes led to what Mayhew described as, "the leapfrog of population."¹² Intra-Metropolitan Surrey lay in the path of some of these migrations. The predominantly rural districts of East Anglia and the south-west, particularly Suffolk, Norfolk, Devonshire and Somerset, were also among the most important source areas for migrants. This pattern of migration tends to confirm Lawton's analysis of migration during the period 1851-1911, when in rural districts, "heavy population losses resulting from the fall in demand for agricultural labour were experienced everywhere ... only in those rural areas close to growing towns or industrial regions were losses offset by the growth of an adventitious population not dependent upon primary activities."¹³ The Metropolitan Margins typified Lawton's exceptional areas of migrational gain. Internal migration produced an everchanging social kaleidoscope, as Booth observed:¹⁴

Some came from the countryside, others from the inner districts of London, throughout the new suburbs people were constantly moving. Southwark is moving to Walworth, Walworth to North Brixton and Stockwell, while the servant keepers of outer South London go to Croydon.

In the poorer quality housing, the turnover of population was especially rapid. The Vicar of Clapham mentioned 300 tenements "the greater part of



11. Stockwell Green in the early 1870's.

which change their tenants on average every five weeks."¹⁵

Migration within the Metropolitan Margins, played an important part in producing the great variety in architectural styles and house types in Victorian South London. As the more affluent moved south, the large villas they vacated became multi- rather than single-family dwellings. This circumstance combined with the expansion of higher density housing developments in the inner suburbs to give inflated populations to those districts. The rapidity of suburban growth was not always matched by the provision of public utilities, the inadequacy of which was a major factor in the outbreaks of cholera in the 1840's. The rapidly growing suburbs between Brixton and Vauxhall were crossed by an open sewer, liable to flood. Of a densely populated part of this district it was said that "The decrease in the number of inhabited houses is due to the removal to the suburbs (sic) of some of the population especially after the cholera outbreak of 1849. House property consequently depreciated...."¹⁶ The dynamic nature of population change in the Metropolitan Margins stands in marked contrast to rural Surrey, where population growth was slow and in-migration and internal movements of people were of less consequence. By 1871 Intra-Metropolitan Surrey contained 70% of the total population of the county and parts of it, particularly in Lambeth, Camberwell and Wandsworth, could no longer be considered as belonging to the Metropolitan Margins, for they had become integral parts of the Metropolis itself.

The process of suburban advance.

"As late as the opening of the nineteenth century, Londoners, though they might grumble at the stink and congestion and noise of their immense metropolis were never far separated from country sounds but already the speculators were hard at work, waves of brick advanced upon farm and garden."¹⁷ This was still the situation south of the Thames in 1870, where, even intensively developed parishes, such as Lambeth and Camberwell, recorded fifty-four and sixty-five acres of agricultural land respectively.¹⁸ Wedges of farmland still survived here and there amongst new streets, an



III. The houses built upon
Stockwell Green in 1876.

(Nos. 45 - 51).

amalgam which typified the Metropolitan Margins as a whole. Building development fluctuated in its intensity. In Kennington and Bermondsey, for example, there were peaks of expansion between 1841-51 and 1861-71, with a lull during the intervening period. In detail as Cairncross, Weber and later Parry Lewis have shown, there were marked oscillations concealed in the inter-censal periods.¹⁹ There was, therefore, a patchwork pattern of growth, which varied in both time and space, giving a range of house types and a seemingly haphazard survival of farmland. The variations in space owed much to many variables, which included landowners, speculative builders, capitalists and building societies. An examination of the suburban development of a part of central Lambeth will illustrate their importance further.

By the mid-eighteenth century very little development had taken place, apart from a few houses around Stockwell Green and the Manor House nearby (Fig.5:4).²⁰ In 1806 this picture was only a little changed by the appearance of groups of houses fronting on Clapham Road (Fig.5:4).²¹ Seventeen years later housing was still confined to the three main roads which bounded the area and to Stockwell Road which bisected it (Fig.5:4).²² However, by 1872 (Fig.5:4) more than half of this district was covered with houses and the remainder exhibited the beginnings of development in the form of new and partly built up roads. Development was completed ten years later, when the last field in this part of Surrey was built over. An important factor in determining when large-scale development occurred was access to London. This was greatly improved by the opening of Vauxhall Bridge in 1876, together with the forming of the approach roads a little later (Harleyford and Camberwell New Roads). The earlier house construction along the principal road antedates these improvements; thus, large dwellings with coach-houses, mostly individually built, had appeared on Clapham and Brixton Roads well before 1816 (Plate VI).²³ For example, in 1736 Sir John Lade had purchased twenty acres of land in Stockwell fronting Martin Lane (Clapham Road). This had been sold in 1782 to William Malcolm, nurseryman, who used it as nursery grounds. Part of this small



IV. Piecemeal housing development
facing Stockwell Green, built 1820
-1840.

(Nos. 28 - 34).

estate was sold yet again to Thomas Cope of Kennington in 1807 and let on building leases, the product of which were numbers 159-169 Clapham Road. In 1792, Malcolm sold four acres of the nursery to Christopher Fall of Newington, who let one acre of it on building leases, which produced 171-185 Clapham Road. The first (Nos.179-185) were built between 1792 and 1794, the last (Nos.175-7) during the period 1831-1840). The remaining three acres, which did not front on to Clapham Road, were less valuable for building and consequently were not developed until much later. This land was sold in 1811, on Fall's death, to the Trustees of Stockwell Orphanage, who in turn sold it to Spurgeon's Homes in 1866. They granted building leases almost immediately and building began in 1867.

Another case of linear growth along Clapham Road, was the land which came into possession of the Duke of Bedford in the early eighteenth century, at the junction of Clapham and Bedford Roads, where the Bedford Arms now stands. Houses now numbered 355-393 Clapham Road were built on this ground between 1792 and 1815, following an agreement between the Duke of Bedford and Archer Wilson, a Fulham builder.

Similar developments were taking place at about the same time along Brixton and Stockwell Roads, producing the skeletal pattern depicted on Greenwood's map, with the oldest nucleus of settlement in the area around Stockwell Green, at its heart. The Green itself was not built over until 1876 (Plates II and III). By 1840, the area facing the Green had been developed in a piecemeal fashion, the houses so produced being a mixture of styles ranging from late Georgian and Regency to the row of terraced cottages built about 1840 (Plate II).

At this time, the whole of the area was ripe for development, its residential advantages having been greatly enhanced by improved accessibility to London. During the 1840's and 1850's, the process of infilling proceeded apace. Stockwell Park Road and Stockwell



V. Cottage dwellings c.1840,
in Southesk Street (now demolished).



VI. Regency houses along
Clapham Road.

(No. 171).

Park Crescent, a gracious estate of detached and semi-detached houses (Plate I), was laid out about St. Michael's Church. The land was purchased by William Cox in 1826. Six years later the northern parts of Stockwell Park Road together with Stockwell Park Crescent were laid out and building leases granted for plots of land along them.²⁴ The southern section of Stockwell Park Road was developed towards the end of the 1840's, linking the estate with the larger Angell estate on the east side of Brixton Road. To the north of Stockwell Park Road yet another small estate was laid out on land leased by the third Baron Holland of Foxley from the Archbishop of Canterbury, on fifteen different building leases, all for terms of ninety-nine years, from 1820-1824. By 1841, South Island Place, Holland Street and St. Ann's Road, to name but three, had been formed and houses built upon them. At the same time, one Randle Jackson laid out Grove and Lorn Roads, while a Robert Slade developed Singleton, Robert (later Robsart) and Thornton Streets in a grid-iron pattern which stood in sharp contrast to the form of Stockwell Park Road Estate. Not all of the housing built in this area was for the middle class. By 1850, several groups of small terraced houses had appeared in, for example, Bedford Row and Bedford Place close by the junction of Landor and Clapham Roads. Similar groups of terraces had made their appearance along Chapel Street (later Lingham Street) and Robertson Place (later Southesk Street) near Stockwell Green (Plate V). The twenty years which followed saw urbanization completed in this area. Infilling took the form of long rows of large, terraced houses (Plate I). During these seventy years, the arable, pasture and market garden had given way to a wholly urban landscape. However, the process of suburban development ensured that agricultural land-use survived amongst the new streets.

Places more distant from London often owed their suburban expansion to the new found accessibility engendered by the railways. Thus in 1845, the Epsom to Croydon extension line was opened, and in the same year Thomas Alcock acquired Sutton Manor, laid out parts of the estate with roads and began granting building leases.²⁵ Similar developments were taking place at New Malden, Croydon and Redhill,

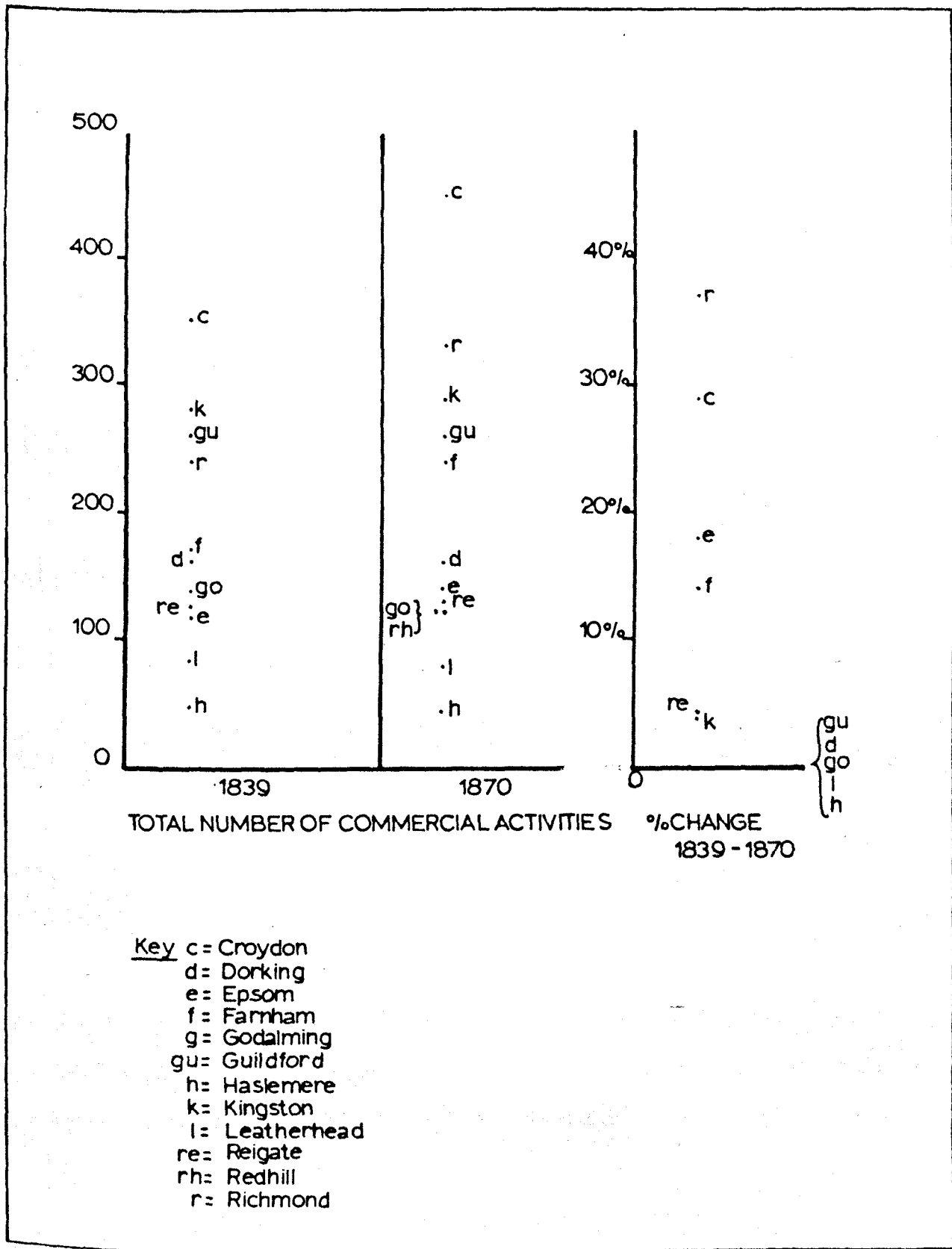


FIG. 5:5. Commercial activities in the towns of Surrey, 1839 and 1870.

Sources: Pigot and Company, Royal National and Commercial Directory and Topography, 1839; The Post Office Directory, 1870.

where outliers of suburbia grew up at locations ten to fifteen miles from the Metropolis.

The expanded towns.

The majority of Surrey's towns remained the service centres and markets for their rural hinterlands throughout the period under review. A few urban centres, notably Croydon, Kingston and Richmond experienced suburban growth. Surbiton, like Woking and Redhill was the creation of the railway growing up "de novo" on the London and Southampton line, near to, but markedly different in form and function from, its near neighbour, Kingston upon Thames. Initially the new settlement lay in rural Surrey, but by 1871 London's expansion had brought Surbiton with Kingston within the orbit of the expanded Metropolitan Margins. "Society" had found in Richmond a pleasant retreat in a rural setting. This exotic town grew rapidly after 1840 and became less fashionable as its mansions were enclosed in an advancing tide of suburbia.

The period 1840-1870 witnessed considerable changes in the morphology and function of the towns of this zone. Croydon passed through all of the stages of functional change identified for Surrey's towns during the period (Table 2) and can therefore be taken as a yardstick, against which others can be measured. In 1839, Croydon stood on the threshold of rapid suburban development, although it was still primarily a market centre and a stopping place for the Brighton stage coaches. Larger than the majority, it was nevertheless similar in function to most other towns in Surrey. The agricultural pattern of its hinterland made it a good market for oats and fodder crops. By 1870, the rank order of Surrey's towns, measured in the total number of commercial units, was only slightly changed (Fig.5:5). Richmond had replaced Kingston as second in importance to Croydon while Farnham's commercial activities had grown by 13% since 1839-- part of the 41% increase that the town had experienced between 1800 and 1870.²⁶ Croydon grew considerably and by the end of this period functional zones could be quite clearly distinguished. (Fig.5:6a;5:6b).

TABLE 2. Stages of areal specialization in the towns of Surrey
1839 and 1870

Stage	1839	1870	Principal Street	Other central area streets
I	Haslemere Godalming Leatherhead	Haslemere Epsom Dorking Godalming Leatherhead	Concentration of commercial activity on principal street, no specialization apparent.	Spilling over of principal street functions to other streets in similar proportions.
II	Croydon Farnham Kingston Richmond Reigate Guildford	Farnham Kingston Reigate Guildford	Beginnings of specialization on the principal street.	Industry and professional services tend to be concentrated on one or more streets.
III		Croydon Richmond	Principal street as area concentrating on high value activities.	Marked specialization in food, industry or building trades. Growth of retail sub-centres.

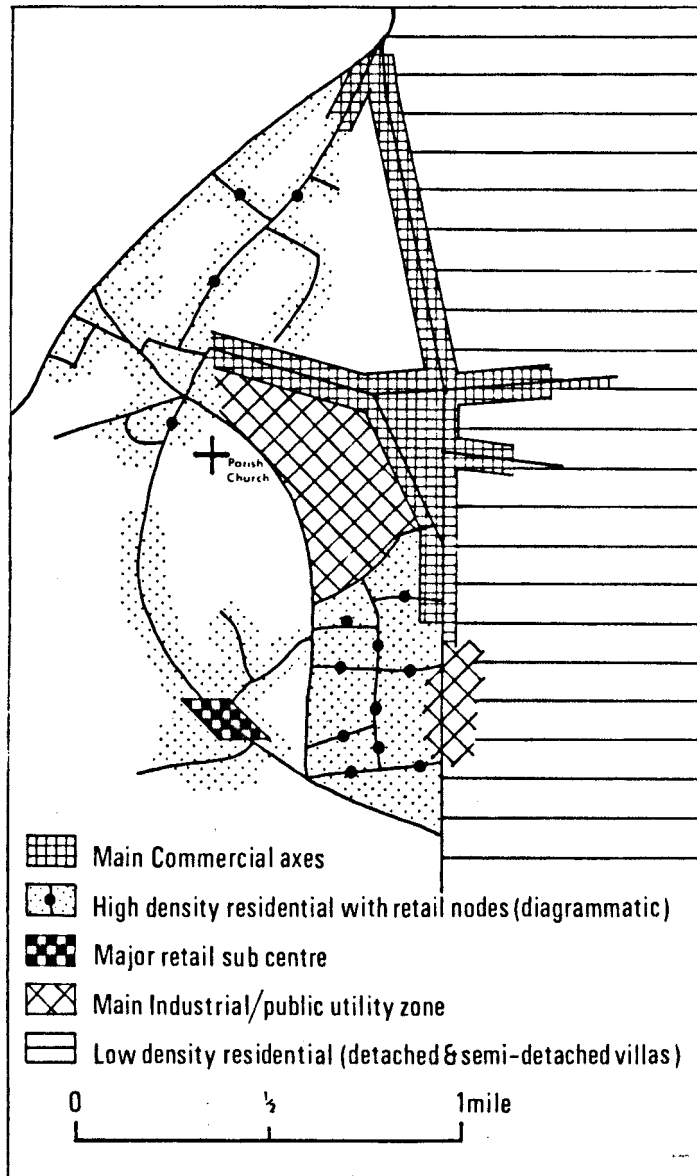


FIG: 5:6a. Croydon: functional zones, 1870.

Source: The Post Office Directory, 1870.

CROYDON DISTRIBUTION
OF COMMERCIAL
ACTIVITIES
1870

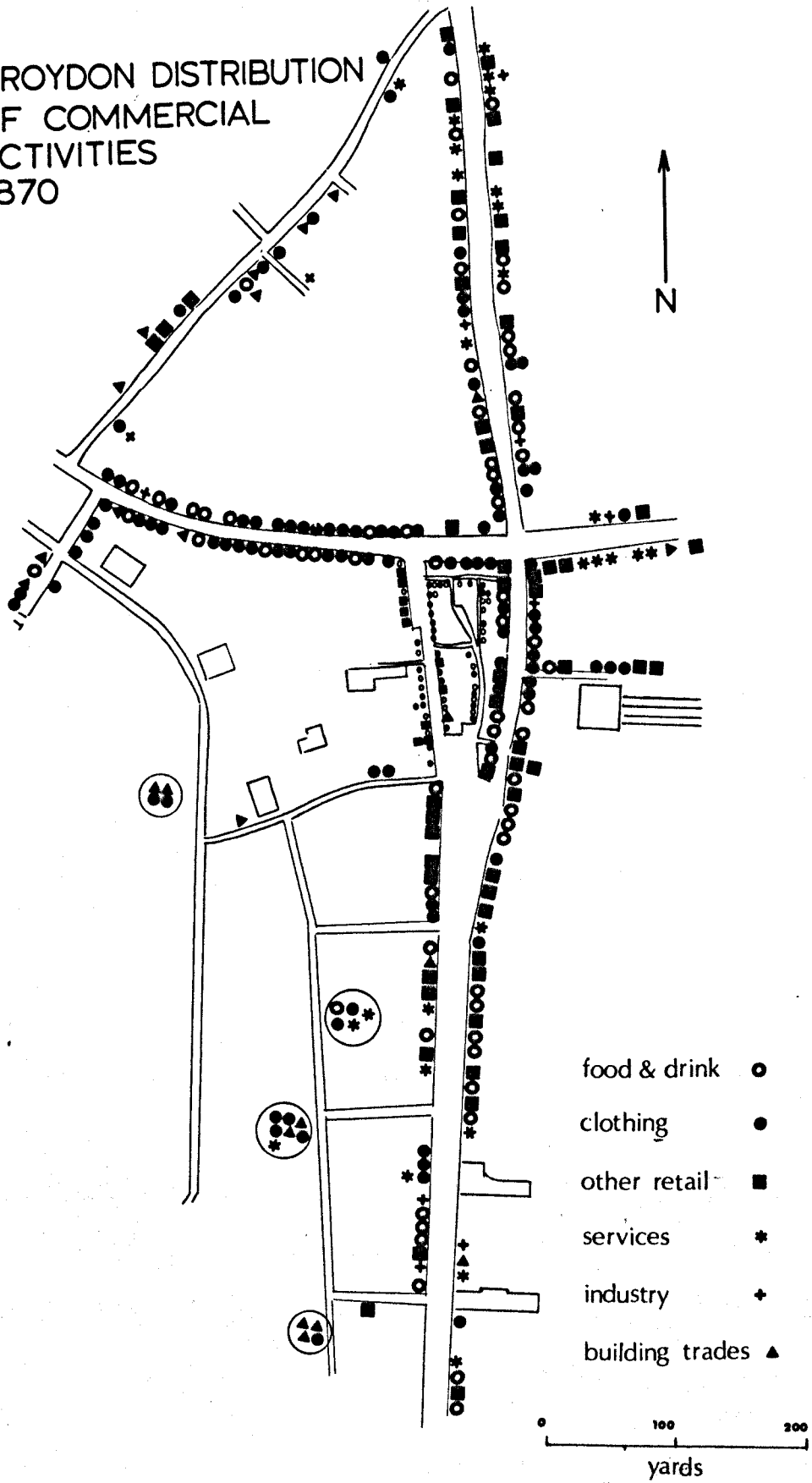


FIG.5:6b. Croydon: distribution of commercial activities. 1870.

Source: The Post Office Directory, 1870.

The chief features were the north-south commercial core, with its east-west extensions and the location near the centre of such public utilities as gas and water works together with a mill and a brewery. Around this central zone were the residential areas, each with its retail node; the detached villas to the east of High Street contrasting with the terraces of the high density settlement on the lower ground of the Wandle valley, to the west. Between 1839 and 1870, Croydon experienced three types of change in the distribution of its commercial activities. The commercial areas of 1839 grew in size, new sub centres developed and there was some agglomeration of commercial functions into recognizable zones, at the centre of the town. Thus North and South Ends, the physical extensions of High Street, and nearby Church Street, greatly increased their numbers of retail units.²⁷ In addition, Church Street became important for small-scale industries.²⁸ North End was similar in functional make-up to High Street, the indice of dissimilarity was low at 15.1 (Appendix 1). South End, however, with an indice of 34.8, was quite different, with a greater emphasis on food retailing, which by 1870, was all but absent from the High Street and North End. These two streets formed the most distinctive section of the commercial core, concentrating on clothing and professional services; industry and the building trades had diminished in importance since 1839. This zone spilled over into Katherine and George Streets, although the absolute numbers of commercial units involved were small. Lower Croydon continued to be the centre of food retailing, with some industry, especially on Church and Surrey Streets. The building trades were distributed amongst the higher density, lower income housing areas, whilst the builder/entrepreneurs tended to occupy locations peripheral to the built-up area, where larger sites for storage yards were available. Apart from the low density housing areas, the residential streets of Croydon nearly all contained a scatter of retail traders, as is well illustrated by the area between Scarbrook Road and Laud Street (Fig.5:6). More significant areally were the nucleations of commercial activities which were developing in the newly built parts of the town-- Gloster Road in

the north-east, Handcroft Road in the north-west and Old Town in the south-west. These streets had twenty-five, twenty-six and twenty-seven retailers respectively and few other commercial functions, an emphasis which was paralleled at this time in Redhill, Surbiton and the newly developed Holmesdale Road to the north of the railway in Reigate. It is clear that for Croydon, the transition from market and rural service centre, to suburban satellite town was accompanied by changes in both functional make-up and the distribution of commercial activities.

The agglomeration of commercial functions to form distinctive zones was less evident however, in the other large towns. Kingston showed little change, except in Clarence Street, where retail units had increased by twenty-two, to make it the principal area of retail trade with a concentration of clothing establishments. Professional services and small-scale industries were mostly located on High and Eden (formerly Heathen) streets. In Richmond, George Street though still the main commercial artery, was relatively less important than it had been in 1839. Kew Road retained its emphasis on food retailing, whilst Upper Hill Street and King Street together accounted for 30% of the towns' clothing retailers. As in Croydon, the distribution of building trades was related to the newly developed areas, which were concentrated on Marsh Gate Road.

The functional structure and areal distribution of functions observed for Croydon are more nearly mirrored in Richmond than in Kingston at 1870, for, whilst the former retained some of its functional distinctiveness, it also expanded its commercial activities, to the point at which distinctive regions had emerged. Kingston, on the other hand, though a large centre, did not grow much during the first seventy years of the nineteenth century and there was only a small degree of functional segregation at its centre.

The London and Southampton railway by-passed Kingston, which

was not linked by rail with London until 1869. The differences between the urban settlements have so far been explained chiefly in terms of size and the amount of commercial expansion which accompanied the development of suburban additions to old established towns. Changes in the character of their hinterlands of these towns were also important, for as sections of the rural areas they once served were let on building leases, their role as rural service centres diminished in significance. The decline of the craft industries is indicative of this change. Croydon and Kingston lost 10% and 50% respectively of their industrial units between 1839 and 1870, not all of which can be attributed to amalgamation and an increase in the size of units. It was the saddlers, wheelwrights, turners, tanners and basket makers who were reduced in number; in other words, the craftsmen who had looked to the rural hinterlands for their markets and raw materials. The new settlements at Redhill, Surbiton and Woking were, from the outset, serving their suburban population. The growth of these settlements and the development of their commercial activities was rapid. In 1839, there were four retail traders at Redhill, by 1851 the number had grown to sixteen and nineteen years later reached seventy-four. These new towns contained few industries, a small number of professional services, but a large number of representatives of the building trades. They were similar in their range of commercial functions to the newly developed retail sub-centres of Croydon, Richmond and Reigate.

At the beginning of the nineteenth century all of the towns of Surrey, with the exception of Richmond, were, in many respects, part of the countryside with which they were functionally linked. The advent of improved communications and the outward growth of London, meant that some of these settlements grew rapidly, as suburban areas were added to their old cores.²⁹ The tendency was for the rural service functions to become relatively less important as these settlements developed to serve a growing suburban population. The increase in the number of commercial units was accompanied by their agglomeration to form distinctive functional zones, which stood in marked contrast to the more heterogeneous mixture of

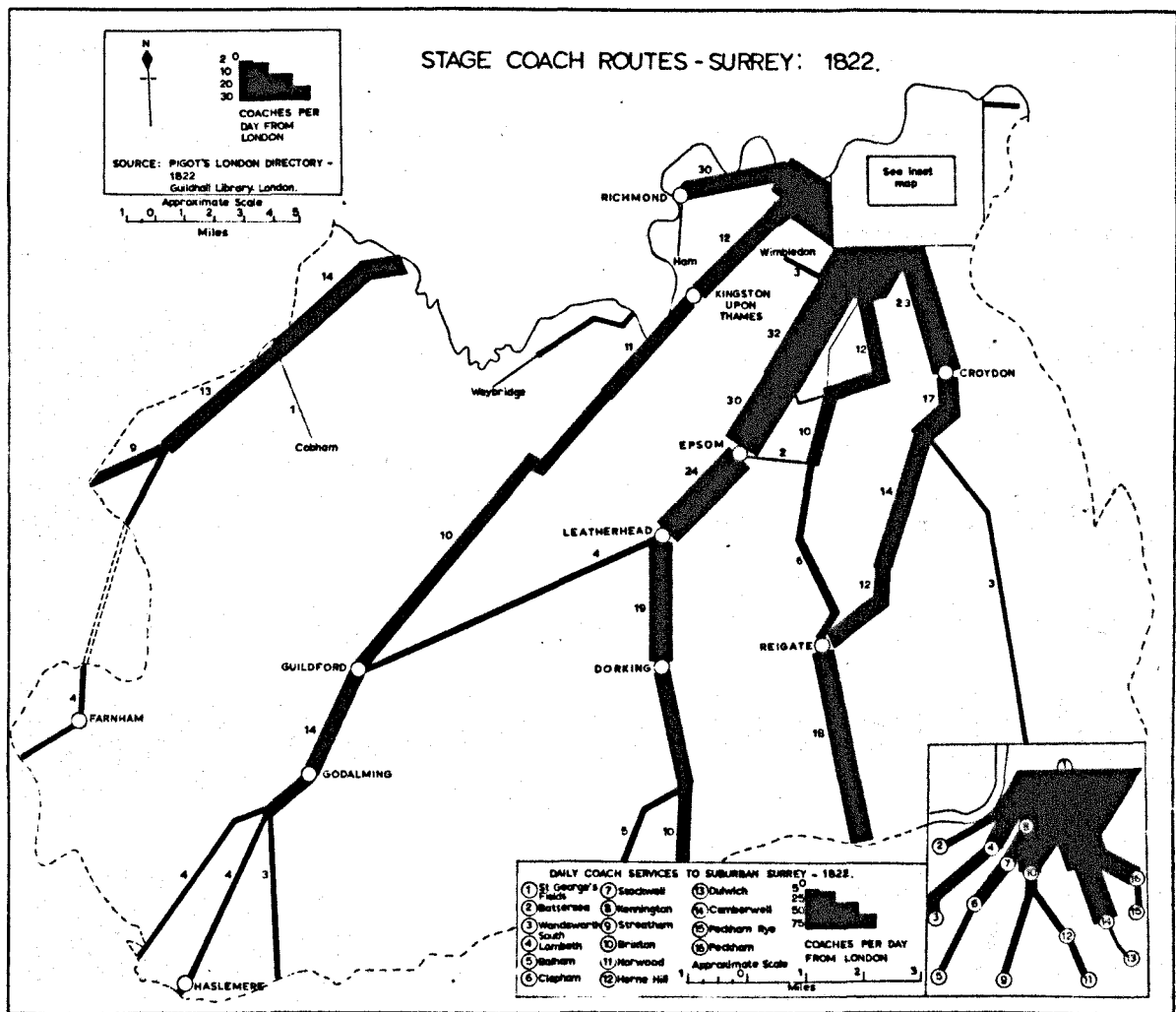


FIG. 5:7.

Note. The lower key refers to the inset map which shows the stage-coach services operating in the north of the county.

commercial activities, which had previously characterized the principal streets of the towns.

Transport and communications.

During the first three decades of the nineteenth century, passenger transport facilities were limited to the relatively expensive stage and short-stage coach services (Fig.5:7). While the stage-coach routes incidentally served the Metropolitan Margins, their prime function was the carriage of passengers over longer distances. Within the area bounded by Richmond, Epsom and Croydon, which embraced the districts of suburban growth to 1840, the short-stage coach was the principal means of passenger transport. At 1822, a finger like pattern of short-stage coach routes reached out from the convergence of roads at St. George's Circus to the suburban nuclei along and between the turnpike roads. Although the provision of short-stage coach services linking north Surrey with London implies a greater potential mobility for the population of that district, it was not, in itself, a very important factor in suburban advance. Indeed, the daily pattern of services exhibits no provision for the morning or evening peak demands normally associated with commuter traffic. Moreover, the cost of travelling by these vehicles, meant that their use was restricted to the more affluent. The single fare from Clapham to the City, a distance of 6 miles, in the early years of the century was 1/6d outside or 2/- for inside passengers.³⁰ Both stage and short-stage coaches gave rise to high movable costs, but low fixed costs; it was therefore difficult to reduce these by increasing the flow of vehicles. Generally the number of passengers was a constant and so economies of scale in this direction could not be achieved either.

For the majority of the population of north Surrey, pedestrianism was "...the most usual and within narrow limits the general method of locomotion in London at the opening of the Victorian era," and remained so until an extensive network of omnibuses had developed.³¹ A number of Select Committees, appointed to examine the need to improve the Thames bridges and the approach roads to them,

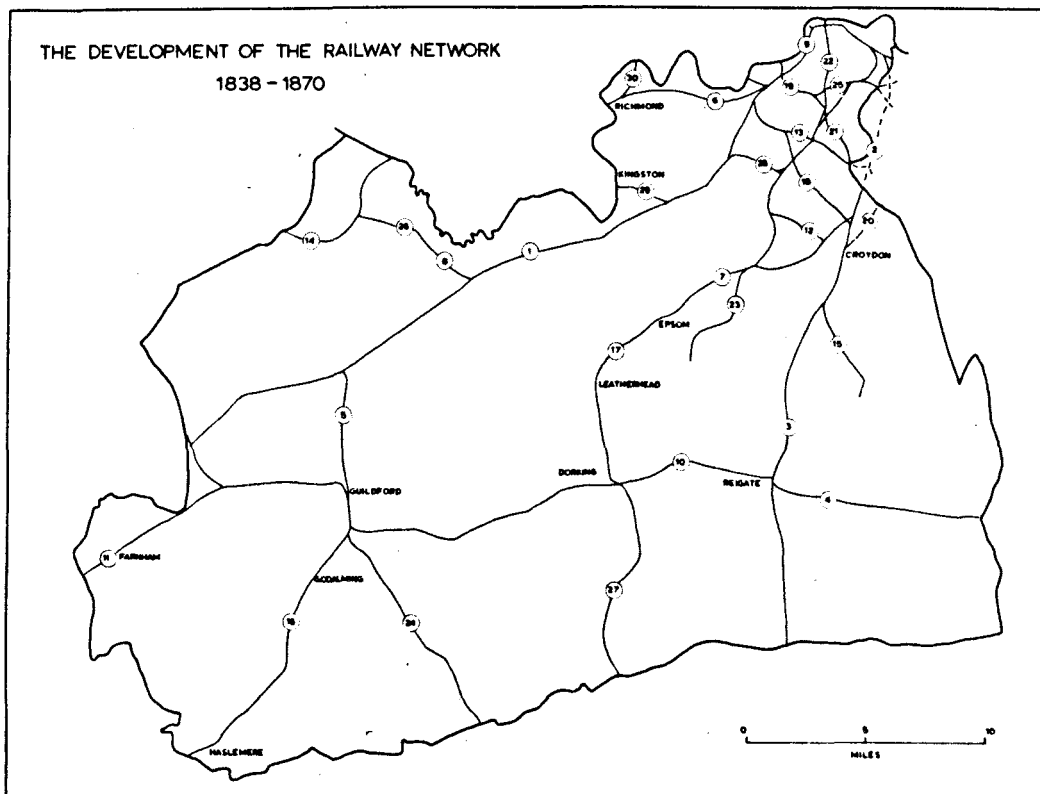


FIG. 5:8a.

Note. The numbers on this map relate to the histogram overleaf which shows the route miles of railway opened in each year, 1838-1870.

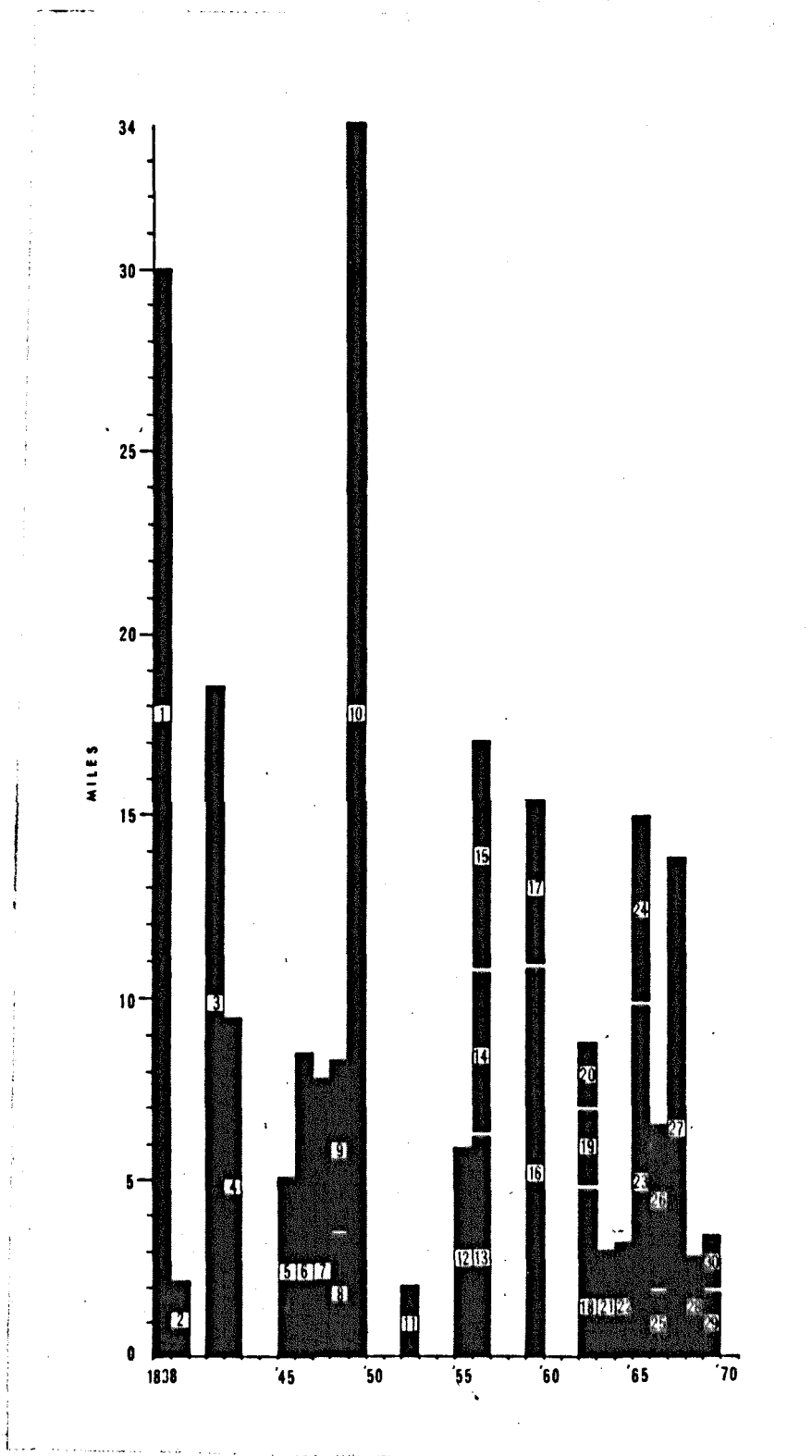


FIG.5:8b. Development of the railway network, 1838-70.

received evidence of the importance of pedestrianism.³² While the figures presented below must be treated with caution, they are a clear indication that many people walked to work in London from north Surrey, in the years before 1850. The first railway to approach London from the south, the London and Greenwich, recognizing the

TABLE 3. Foot passengers per week using the Thames Bridges, 1811 and 1836.

	London Bridge	Blackfriars Bridge	Waterloo Bridge
1811	84,640	61,069	-
1836	-	396,410	45,230

Sources: Appendix 3 of S.C. on Blackfriars Bridge (1836)
 Appendix 6 " " " " " "
 S.C. on Metropolitan Improvements (1836)

importance of the foot traveller, provided a roadway, and gravel path alongside its tracks which could be used on payment of a small toll -- in the year 1838-1839, 120,000 people used this facility. Even in 1854, it was estimated that 200,000 people travelled to work in the City of London by foot.³³ The absence of cheap public transport can thus be seen as a significant factor, which limited the extent of large scale suburban development in north Surrey before 1840, by which time, the omnibuses and the railways were beginning to extend the area in which suburban growth might occur.

The growth of a railway network in Surrey can be considered in two parts, distinct in time and function (Figs. 5:8a and 5:8b). Initially, trunk routes serving Surrey only incidentally were developed. Although these lines passed through the inner suburbs en route for their London termini, they made little impact upon these areas. Fares were high and even the implementation of the clauses of the Cheap Trains Act of 1844, could only affect small numbers of people, for, the Act laid down only that the railway companies should run one train over all of their lines, once a day, each weekday, at the rate of 1d a mile. However, some companies

were interested in serving the less affluent. The South-Eastern for instance was prepared to "...carry Third Class passengers from the Bricklayers Arms only by the trains headed Third Class," that is specifically serving the inner suburbs.³⁴ On the other hand, the London, Brighton and South Coast Railway positively discouraged the use of the line for short journeys, declaring that "No passengers will be conveyed from London to New Cross or from New Cross to London only."³⁵ Rail fares were not generally low enough to attract any but the middle class, until about 1883. This inevitably affected the social and physical make-up of the outer suburbs at Croydon, Surbiton and Woking. The Second Class single fare from Croydon to London in 1843 was extraordinarily high, at one shilling and ninepence.³⁶ The fares from Vauxhall to Kingston in 1850 were:

First Class.....	2/-	
Second Class	1/6	37
Third Class	1/-	

As late as 1866, the London and South-Western were still only fulfilling their minimal obligations, under the Cheap Trains Act. A Report of the "Special Committee of Kingston Corporation on a proposed new railway line to Croydon," included the statement that "Many now complained of the high prices they had to pay on the South-Western line. That Company now only runs one Third Class train a day from each station up and down this is not the case with other lines in existence, some have Third Class carriages to almost every train..."³⁸ The reaction of the railway Company was to announce one month later that "...ten trains on which Third Class tickets would be valid would be run from Kingston to Waterloo."³⁹ Despite the cost of rail transport, property developers advertising their sites in "The Builder" and elsewhere, were quick to mention the proximity of their developments to a railway station. In some cases developers attempted to attract purchasers by offering reduced fares from nearby railway stations. Residents on the Clapham station Estate, for example, were offered yearly tickets to London for a period of seven years, and a similar concession was made on the Kingston Hill Estate, whose residents could travel from either Kingston or Malden stations.⁴⁰

The second phase of railway construction, was after 1855,

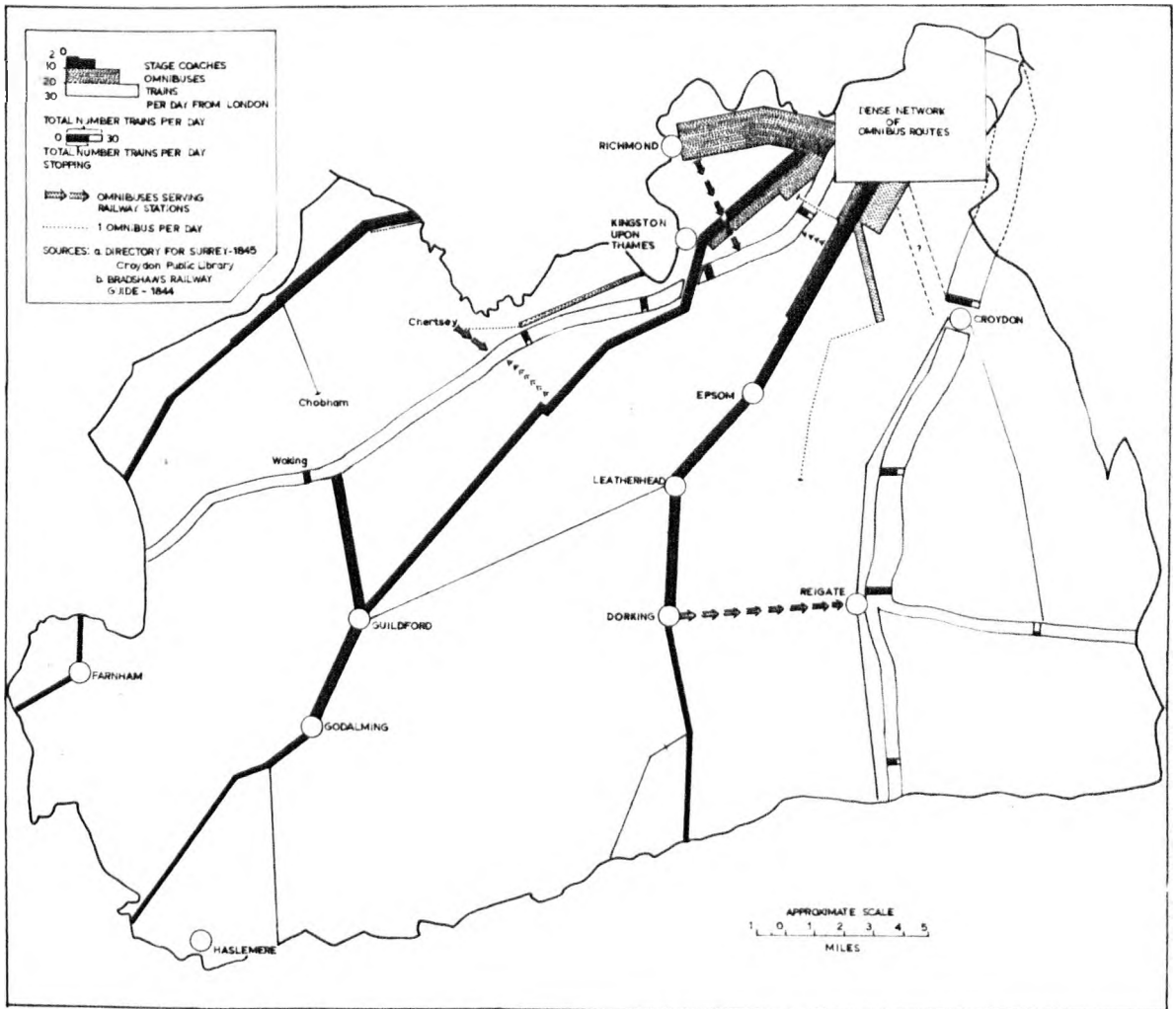


FIG. 5:9. Transport and communications in 1845.

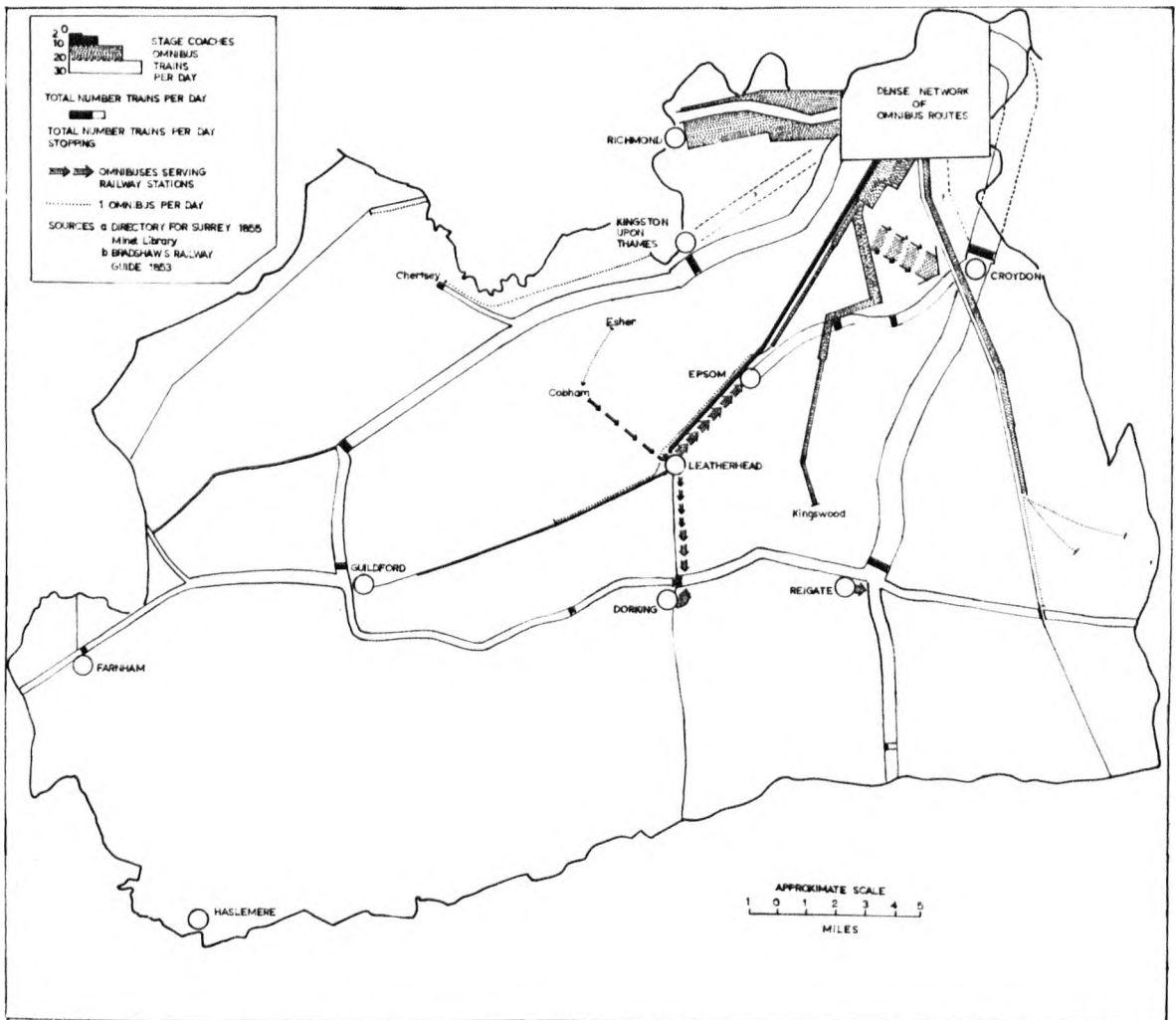


FIG.5:10. Transport and communications in 1855.

associated with the development of a number of short distance routes, mostly within the Metropolitan Margins.⁴¹ These second generation routes were designed to serve and nourish new suburbia, in marked contrast to the diffident or cautious policies of some railway companies, which had hitherto prevailed. The more rapid advance of the suburbs into the countryside, which took place after 1850, owes much to the combination of rail transport and omnibus feeder services.

During the years when the railways were not much concerned with commuter traffic, the omnibus provided a cheap means of transport for the lower paid groups. Although pedestrianism remained of great importance, the omnibus allowed a greater segregation of home and work-place than had previously been possible. In the years following Shillibeer's introduction of the omnibus in 1829, the network of routes served by this vehicle in north Surrey grew, reaching out beyond the inner suburbs to the fringes of the rural districts. By 1845, the short-stage coaches had been supplanted by the omnibuses, whose services extended to Kingswood and Caterham, although the greatest densities of routes lay north of Richmond, Wimbledon and Croydon (Fig.5:9). Within ten years this zone of active suburban development was even better served (Fig.5:10). The growth of the suburbs at the distance of Clapham or Brixton owed much to the increased accessibility provided by a rapidly growing number of omnibus services. In 1825 short-stage coaches made twenty-four and fifty-seven journeys a day from Brixton and Clapham respectively to London. By 1845, these places were served by 105 and seventy-nine omnibuses, and in 1872 by 144 omnibuses each.⁴² The omnibus was also used to provide feeder services to the railways, the omnibus routes being modified as the railway network developed. Thus, in 1839, omnibuses left Guildford five times a day to meet the trains at Woking station, a service which was discontinued following the opening of the line to Guildford.⁴³ The progress of the construction of the London and Southampton line was marked by changes in the pattern of feeder services carrying passengers to and from the advancing railhead. Omnibuses from Kingston to the railway

were consequently affected: the 1839 railway timetable noted that "...alteration in the hours of starting is anticipated as the line progresses."⁴⁴ Some of the feeder services had a less transitory existence; at Esher the omnibus service to the station, some distance from the town remained in use until the present century. In several instances, railway routes passed over common land which was often distant from the main settlement, but which could be obtained cheaply -- a feature exemplified by the dip-slope settlements between Ashted and Guildford. Several of these places were served by omnibuses, which ran from the village centre at the foot of the dip-slope to the railway station on the London clay, where the beginnings of secondary suburban nuclei had begun to make their appearance by 1870.

The period under review thus witnessed revolutionary changes in transport. The stage-coach and short-stage coach, once commonplace, became anachronisms, while the two forms of transport which were absent in the 1820's, the steam locomotive and the omnibus, had become pre-eminent by the mid-1850's. The omnibus could carry a larger number of passengers, at lower cost, than its competitor, the short-stage coach. At the same time, the flexibility associated with road transport allowed the omnibuses to be complimentary to the railways, rather than direct competitors. The omnibus could serve a large number of locations in the inner suburbs, a role which the railways could never completely fulfil and in addition, the omnibuses' flexibility enabled them to carry passengers to the railway stations from the surrounding areas. For much of the period 1840-1870, the railways operated low density routes, charged high fares and added "The middle-class mid-Victorian spacious suburb" to the suburban development of the Metropolitan Margins.⁴⁵ Whereas, prior to 1840, the limited provision and high cost of passenger transport was a constraining influence on suburban growth in north Surrey after this date, both the expansion of the continuously built-up area and the growth of suburban nuclei at a distance from London owed much to the development of the omnibus and railway networks respectively.

¹C. Dickens, Our Mutual Friend (Everyman Edition, London: 1957), p. 205.

²Swann, London Estates in the eighteenth century

³Population totals for all Surrey parishes 1801-71 were plotted graphically; for convenience the parishes were grouped into deciles based on the total amount of population change during this period. These groupings were found to have some significance, places with large increases having similar graphical forms. In general terms at least, both the total amounts and the form of the changes in population were related.

⁴The population of Redhill increased by 300 during the intercensal periods between 1821 and 1851, whereas 1851-61 saw an increase of 3,500, 1861-71 a rise of 900. Other settlements which were also made accessible by improved communications grew in a similar fashion.

⁵The reliability of the earlier Census Returns has been questioned, not least by John Rickman who, in the introduction to the 1821 Census considered that "...it has been reasonably argued that the first enumeration of the people in Great Britain, especially as it took place in time of war, was rendered somewhat defective from backwardness, evasion in making the answers ..." Ambiguities were especially prominent in the case of houses until 1851, when a house was defined as "...all the space within the external party walls of a building." Thus earlier accounts of numbers of houses must be treated with caution.

Great Britain, Parliament, Parliamentary Papers, Census of Population, 1821, p. xxii.

Great Britain, Parliament, Parliamentary Papers, Census of Population, 1851, p. xxxvii.

⁶J. Fletcher, "The Metropolis, its boundaries, extent and divisions for local Government," Journal of the Statistical Society of London, VIII, (1844), p. 80.

⁷Great Britain, Public Record Office, Census of Population, 1861, Enumerators' Books, R.G.9. 363.

⁸Ibid.

⁹Ibid.

¹⁰ Ibid.

¹¹ Ibid.

¹² H. Mayhew, London Labour and the London Poor (London:1861).

¹³ R. Lawton, "Population changes in England and Wales in the later nineteenth century: an analysis of trends by Registration Districts," Transactions of the Institute of British Geographers, XLIV, (1968), p.55.

¹⁴ C. Booth, ed., The Life and Labour of the People in London (London:1889).

¹⁵ Great Britain, Public Record Office, Tithe Assistant Commissioners' Report, Clapham, I.R.18, 13554.

¹⁶ Great Britain, Parliament, Parliamentary Papers, Census of Population, 1851, Surrey, p.25.

¹⁷ Mayhew, London Labour,

¹⁸ Great Britain, Public Record Office, Agricultural Returns, 1870, M.A.F.68.261.

¹⁹ A.K. Cairncross and B. Weber, "Fluctuations in building 1785 - 1849," Economic History Review, 2nd Series, IX, No.2, (1956).

²⁰ J. Rocque, Map of the County of Surrey, 1768.

The dating and accuracy of this map are discussed in:
W. Hooper, "Rocque's map of Surrey," Surrey Archaeological Collections, XL, (1932).

²¹ Ordnance Survey, One inch to one mile map of Surrey, 1806.

²² C. Greenwood, Map of the County of Surrey, 1823.

The accuracy of Greenwood's county maps are considered in:
J. B. Harley, "Christopher Greenwood, county map-maker and his Worcestershire map of 1822," Worcestershire Historical Society, (1962).

²³ London County Council, Parish of St. Mary Lambeth, Part II, The Survey of London, Vol. XXVI (London: 1951), p.83.

²⁴ Ibid, p.82.

Minet Library, Sale Catalogues, 1844-1849, c.63-67.

²⁵F.Richards, Sutton, Surrey and its surroundings (London:1906), pp.21-22.

²⁶The nineteenth century saw the peak of Farnham hop growing. Nigel Temple has shown how "the hop period saw many houses altered in Farnham to conform with new ideas." The hop growers were mostly men of small capital, local tradesmen for instance, whose prosperity was exhibited in alterations to the town's buildings. It does not seem unreasonable to see the growth in commercial activities as an expression of their good fortune and the 40% increase in population which the town experienced between 1831 and 1871.

N.Temple, Farnham Inheritance (Farnham:1956).

	1839	1870	
Church Street	22	55	
North End	16	40	Commercial units.
South End	9	34	

²⁸In 1839 there were 3 industrial premises, by 1870 there were 12.

²⁹The 1870 Directory lists 41 lodging houses in Richmond, suggesting that the town's resort function continued to be of some significance even at this date.

³⁰T.C.Barker and M.Robbins, A History of London Transport, Vol.1, The Nineteenth Century (London: 1963).

³¹G.A.Sekon, Locomotion in Victorian London (London:1938).

³²Great Britain, Parliament, Parliamentary Papers, 1836, Vol.XX, Report of the Royal Commission on Blackfriars Bridge, Appendices 3 and 6.

Great Britain, Parliament, Parliamentary Papers, 1836, Vol.XX, Report of the Select Committee on Metropolitan Communications.

³³Great Britain; Parliament, Parliamentary Papers, 1854, Vol.X. Report of the Select Committee on Metropolitan Communications.

³⁴Bradshaw's Railway Guide, 1843.

³⁵Ibid.

³⁶Ibid.

³⁷Bradshaw's Railway Guide, 1850.

³⁸Surrey Comet, May 27, 1866.

³⁹Surrey Comet, June 30, 1866.

⁴⁰For a discussion of the role of cheap fares in suburban growth see:

H.J.Dyos, "The Suburban development of Greater London south of the Thames, 1836-1914," (unpublished Ph.D. Thesis, University of London, 1952).

⁴¹Occasionally the construction of these lines involved the destruction of existing housing and the provision of alternative accommodation for those people dispossessed, since the only land available for this purpose was some distance from London, reduced fares were also made available. See for example: "The London, Chatham and Dover Railway Bill, 1864."

⁴²Pigot & Co., Royal, National and Commercial Directory and Topography, 1825.

The Post Office, Directory of the Six Home Counties, 1845.

The Post Office, Directory of Surrey, 1872.

⁴³Bradshaw's Railway Guide, 1839.

There were many examples of these feeder services. Leatherhead is approximately equidistant from Dorking and Epsom, both of which had rail links before Leatherhead belonging to rival companies. Both companies ran omnibuses from their stations to Leatherhead, as C.E.Lee pointed out this broke a territorial agreement between the London, Brighton and South Coast, and the London, Chatham and Dover Railway Companies, see:

C.E.Lee, "Sources of Bus History," Journal of Transport History, II, No.3, (1956).

⁴⁴Bradshaw's Railway Guide, 1839.

⁴⁵H.J.Dyos, "Railways and Housing in Victorian London," Journal of Transport History, II, No.1 (1955).

CHAPTER VI
AGRICULTURAL CHANGE

Changing land values.

It has been established above that the piecemeal nature of suburban development produced a patchwork of town and country in all but the most densely built-over parts of north Surrey. In these circumstances, land values might be viewed from at least two standpoints. On the one hand, land was a resource, whose value could be quantified in land rents, which expressed its productive capacity or its potential for other commercial uses. Throughout the period under review, there was also a growing awareness of the value of land in the form of open space, as an amenity for the inhabitants of new suburbia. As early as 1814, the Egham Enclosure Act had provided a green, "open and uninclosed for the pleasure of the inhabitants and the adornment of their residences on the said green, in such a manner as the commoners shall think fit."¹ A little later, in 1835, a committee of residents of the then fashionable and growing suburb of Clapham, obtained the leases of all of the manorial rights to Clapham Common. They drained and improved it and made it into a public park.² These were the forerunners of the main phase of commons preservation in the 1860's, which found expression in the Commons, Open Spaces and Footpaths Preservation Society of 1865 -- the principal body behind the Metropolitan Commons Acts of 1866 and 1869 which gave some protection to the commons within the Metropolitan Police District.³ Conflicts of interest, between those who saw commons as amenities and others who viewed them as commercial assets, occurred before and after the Metropolitan Commons Acts. The most notable instance of this conflict concerned Wimbledon and Putney Commons, which today constitute the largest open space in south London.⁴ In 1864 Earl Spencer, Lord of the Manors of Battersea and Wimbledon, attempted to enclose the land, but the local residents formed a committee to oppose the plan and the Bill was subsequently withdrawn. Determined to obtain some income from the commons, Spencer opened a brickfield, excavated for gravels and leased a part of the land for use as a sewage farm. Finally, the local residents began moves which culminated in the Wimbledon and Putney Commons Act of 1871, which preserved the

commons for public use, vesting them in Conservators.⁵ Open spaces were not always preserved however, Lorrimore and Walworth Commons were built over in the nineteenth century, following enclosure Acts passed in 1769, while common rights in St. George's Fields were extinguished by an Act of 1810:

St. George's Fields are fields no more
The trowel supercedes the plough;
Swamps, huge and inundate of yore, 6
Are changed to civic villas now.

Even after the Metropolitan Common Acts, some open land was enclosed, including Stockwell Green, which was enclosed in 1875 after a controversial court hearing; a year later the area was covered with large terraced housing (Plate II).

Land rents were raised by the growth in demand for building land, which was in turn the result of continued population increase throughout these years. As early as 1805, Malcolm observed that "...every inch almost of the county that is situate within half an hour's drive of the stone's end and is laid hold of by the opulent trader, placeman or builder, some of it, however, is still held by a few nurserymen, gardeners, cowkeepers and brickmakers..."⁷ The pace of suburban advance increased after 1840, and during the succeeding thirty years Streatham, Lambeth, Camberwell and Clapham, all lost 75% or more of their agricultural land to urban uses.⁸ The amount of building development diminished with distance from London, but decreases of 35-40% in the extent of agricultural land occurred during these years at Banstead, Cheam, Sutton and other places where railway communication had stimulated suburban growth. Competition for agricultural land resulted in a reduction in the size of holdings and in increases in land rents. It is no coincidence that the Thames alluvium and London clay districts constituted the part of Surrey where agricultural rents were highest in 1860 (Fig.6:1), nor that ten years later this same area contained the highest proportion of small farms (under 20 acres) in the county.⁹ The process of subdivision continued apace and in 1873 the number of "occupiers of land" within the Metropolitan Margins had increased considerably; even parishes which were experiencing rapid suburban development

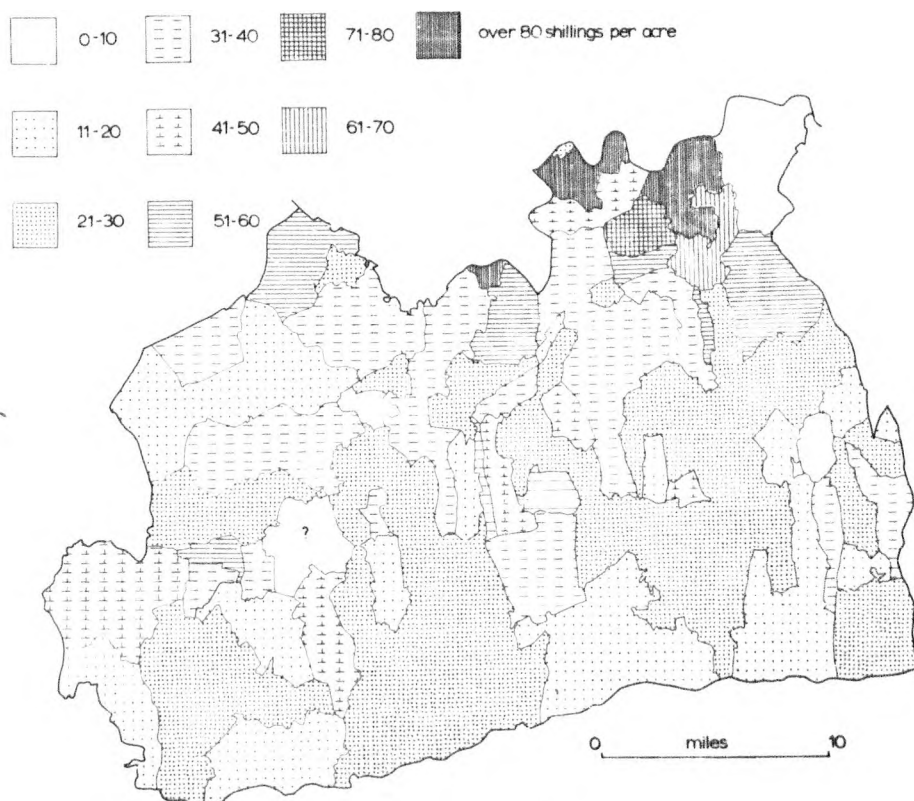


FIG.6:1. Agricultural land rents, 1860.

Source: Parliamentary Papers, 1859-60, Vol.VXIX, Assessments to the Income Tax, Schedule A, 'Lands'.

such as Wimbledon, Kingston and Lambeth exhibited rises of 15 -20% in the numbers of holdings.¹⁰ However, these were not necessarily farms. In the Agricultural Returns the numbers of people, "occupying land," included "pleasure farms" and larger gardens. However, Norman, writing in 1869, could remark with truth that, "The country to the east of Chertsey, Leatherhead and Dorking cannot be looked upon as a purely agricultural district. The number of houses occupied by gentlemen who live there in order to be near London is very large..."¹¹

In the absence of statistical information concerning changes in land values in this district, recourse must be made to specific examples.¹² Two farms, one at Merton and Malden on the London Clay, and the other on Thames alluvium at Byfleet, illustrate the changing land values which typified this district. In 1852, Hobalds Farm was let for 14 years at £261 a year.¹³ By 1874 the rent had more than doubled to £535, for the same acreage.¹⁴ Significantly, the 1874 lease contained a provision by which the lessor might give his tenant 6 months notice, if he intended to sell or let either the whole or some part of the property for non-agricultural uses. Shortly afterwards, in 1885, the land, described as "a farm, brickfields and market garden," was sold in four lots for building purposes.¹⁵ Land which was not sold or let for building developments was sometimes sold to "moneyed Londoners who take a farm for amusement."¹⁶ Foxlakes Farm, Byfleet, described in 1796 as "good turnip and barley land," had become by the 1840's a dairy farm, whose tenant had developed "a fair trade with the West end of London."¹⁷ In 1845, yet other possible uses for the land had appeared as the valuer to Christ's Hospital pointed out:¹⁸

....Looking to its accessible distance from London and easy reach from Weybridge station on the South-Western Railway we think it only right that some competition should be tried with a view to obtaining a rent such as many gentlemen would pay for a pleasure farm of its extent rather than such as might be its mere agricultural value.

Further south, at Chessington, the landlord of Burnt Stubbs Farm was clearly aware of the changes in land value which might accompany the development of a railway. A lease of the farm in 1853 included the provision that "...a sum of £20 by like equal payments would be made in the event of any railway station being made within

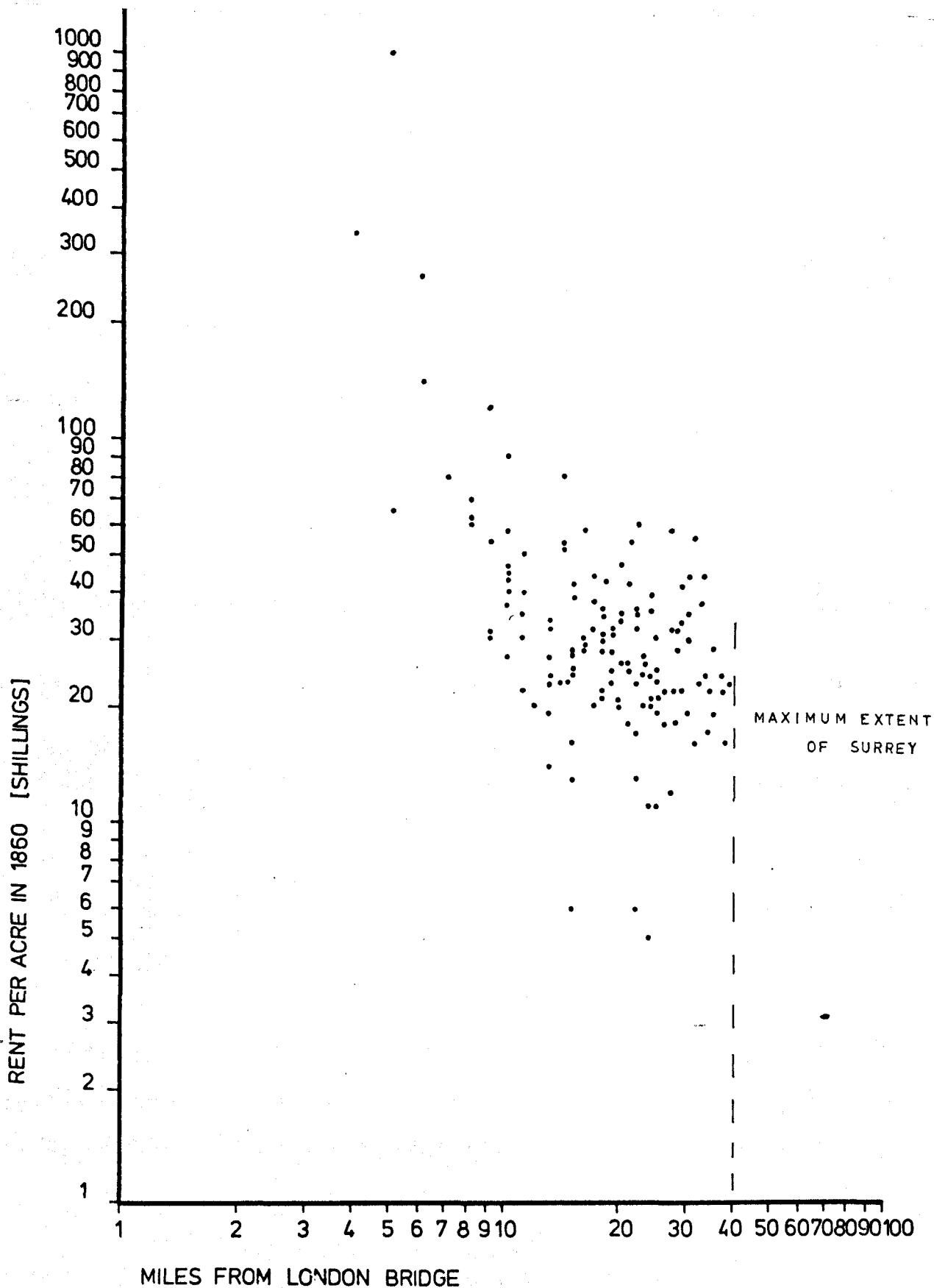


FIG. 6:2. Rent per acre and distance from London, 1860.

Note. Each dot represents the average rent per acre for a parish.

three quarters of a mile...¹⁹

When Byfleet Farm received an allotment of 10 acres from the enclosure of the common, the new land was considered marginal for agriculture production. It was cultivated during the Napoleonic Wars but subsequently planted with conifers.²⁰ The opening of the London and Southampton Railway in 1838, however, gave this land considerable value as potential building land.²¹ Elsewhere, the railway paved the way for suburban growth and so led landowners such as Lord Monson at Reigate and the proprietor of the Barrow Green Estate at Oxted, to look forward to greatly increased incomes, as a consequence of the inflated land values.²² In July 1865 the Barrow Green solicitor considered that:²³

...the passing of the railway (The Surrey and Sussex Junction Railway) would put at least £40,000 in your pocket, assuming your estate to be 1200 acres in extent I consider that before the passing of the Bill it was not worth more than £30,000, and if you add £40,000 to that and £5000 for the timber it will make a total of £75,000 and this invested at 4% would bring you in an income of £3000 a year or about £2000 a year more than you now receive. I congratulate you heartily on this state of things...

While these changes in land values produced increased revenue for the landowners, those tenants who did not occupy a "pleasure farm" were faced with considerable cost increases when their leases fell in. The geographical pattern of land values at 1860 (Fig.6:1), does not support the hypothesis that agricultural rents in Surrey decreased uniformly with distance from London (Fig.6:2).²⁴ Within the Metropolitan Margins such a gradient is evidenced, but beyond a distance of 15 miles from London, changes in land values between 1815 and 1860 suggest that variations in land potential for agricultural purposes were of greater importance than relative proximity to the capital.

Agricultural land-use.

Agriculture in the Metropolitan Margins was to some extent insulated from the ebb and flow of the price fluctuations which affected more rural areas. Proximity to market meant that farmers faced little

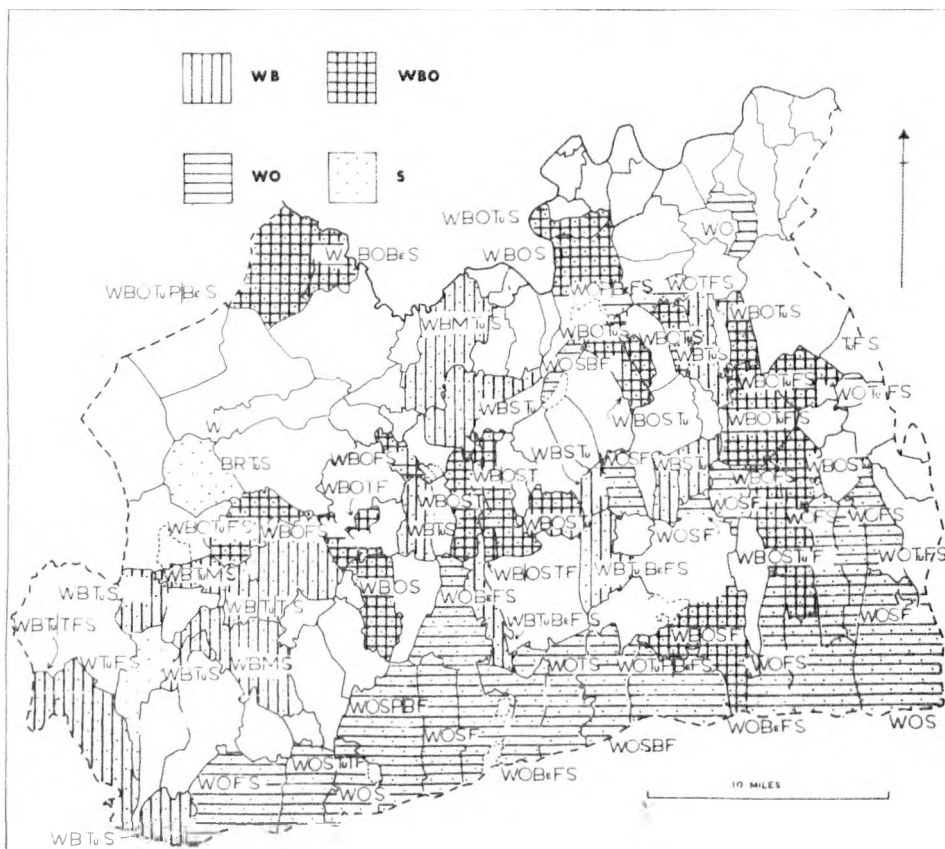


FIG.6:3. Crop combinations, c.1840.

- | | |
|--------------|-----------|
| W - Wheat | B- Barley |
| O - Oats | R- Rye |
| S - Seeds | F- Fallow |
| Tu - Turnips | T- Tares |
| P - Peas | Be- Beans |
| M - Mangolds | |

Source: Tithe Assistant Commissioners' Reports, P.R.O. I.R.18.

competition from more distant producers, at least until after 1850. Prior to this date, north Surrey and the inner districts of the other Home Counties produced most of the fresh vegetables, milk and fodder crops sold in the Metropolis. The pre-eminence of these areas rested primarily on factors of accessibility and perishability, rather than upon the agricultural potential of their soils. North Surrey included some light lands developed on alluvium and brickearth, together with a large extent of London clay, of which one Tithe Assistant Commissioner wrote, "...were it 35 miles from London it would scarcely be worth a rent of 10/- an acre. The mode of cultivation and its contiguity to its market overcomes its natural defects."²⁵

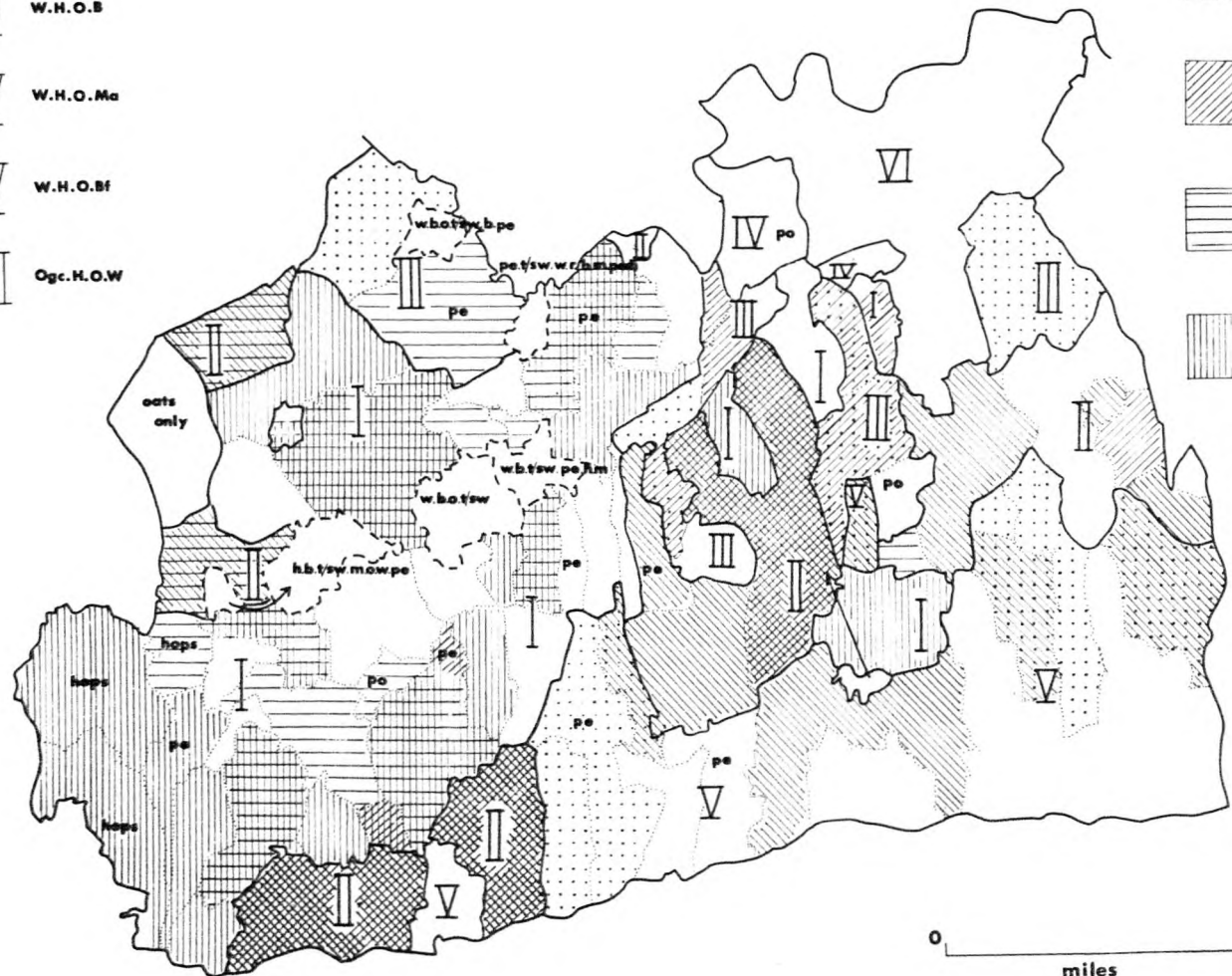
The principal catalysts of change were the expansion of suburban south London and the development of the railways. It might be postulated that the consequences of the growth of London for the land-use pattern would be the centrifugal migration of the intensive forms of agricultural activity identified at 1800. Indeed, by 1870, the boundaries of the Metropolitan Margins had expanded to include the whole of the London clay east of Cobham as well as some sections of the dip-slope of the North Downs. The agricultural patterns of those areas were radically changed. In 1801, the London clay district had been described as "wheat and bean" land. Forty years later, wheat was still the leading crop in most parishes (Fig.6:3), but it was losing ground to fodder crops since, "...green tares, rye and clover are drawn to London and the vicinity, by higher carts... These rather than corn are the staple production of the arable lands."²⁶ This trend continued, for by 1870 the predominant crop combination in this district was other green crops, hay, oats, wheat, in rank order (Fig.6:4). Other cropping changes suggest an increased awareness of the physical constraints which operated, albeit to a limited extent, on the northern clays, and a desire to make the maximum use of the land. Thus, beans and peas became of limited importance: beans were difficult to weed and left the land foul, while peas did not grow well on the damp clays. Tares increased in importance, for they were less demanding of labour, their roots improved the fertility and texture of

Main combination elements

Other combination elements

- I W.H.T/Sw.B
- II W.H.O.T/Sw
- III W.H.O.B
- IV W.H.O.Ma
- V W.H.O.Bf
- VI Ogc.H.O.W

- Turnips & Swedes
- Barley
- Bare Fallow
- Mangolds
- Oats
- pe - peas
- po - potatoes



Source: Agricultural Returns, 1870, P.R.O. M.A.F. 68. 261.

FIG.6:4. Crop combinations, 1870.

heavy land, and cut green they were good summer fodder for the horses and dairy cattle of the Metropolis. Bare fallow had once been an important land-use component here. At c1840 20% of the acreage recorded in the Tithe Assistant Commissioner's Reports, was normally in this category, while farm leases often specified that, "...at least a bare summer fallow be taken before a cereal crop was sown." The 1870 Agricultural Returns record very small acreages of fallow; land had become too valuable to leave without a crop. Hay from sown grasses, permanent pasture and riverine meadow was an important product throughout these years, despite the competition in the London markets from lower cost producers, who sent hay to the capital by canal during the 1830's and so depressed prices there.²⁷ Throughout this district, meadow and pasture land accounted for c40% of the acreage recorded in the Tithe Apportionments (Fig.6:5); thirty years later there was still little change. While farm leases elsewhere prohibited the sale of hay off the holdings, those for farms in the vicinity of London were atypical in that they often specified that when grass or straw were sold off, artificial or natural fertilizer should be applied in sufficient quantities to maintain yields.²⁸ By 1870, the fodder crop spectrum had widened to include barley and turnips for sale. These crops are not tolerant of poorly drained soils and while a causal relationship between their adoption and the incidence of land drainage cannot be established, Evershed's comment in 1853 that, "...much drainage has been done on the London clay" is supported by a number of references in estate correspondence and farm leases to drainage activity between 1840 and 1870.²⁹

The steady increase in the importance of fodder crops was accompanied by changes in their uses. Whereas in 1800 feed crops had been fed to fat calves and house lambs reared locally, these activities subsequently moved to more distant locations, a tendency Stevenson had detected even in 1809.³⁰ At some places near to railway stations, as at Byfleet, Croydon, Surbiton or Richmond, dairy herds were kept and a local demand for fodder crops thus engendered. However, these were exceptions, and stock numbers were normally reduced as

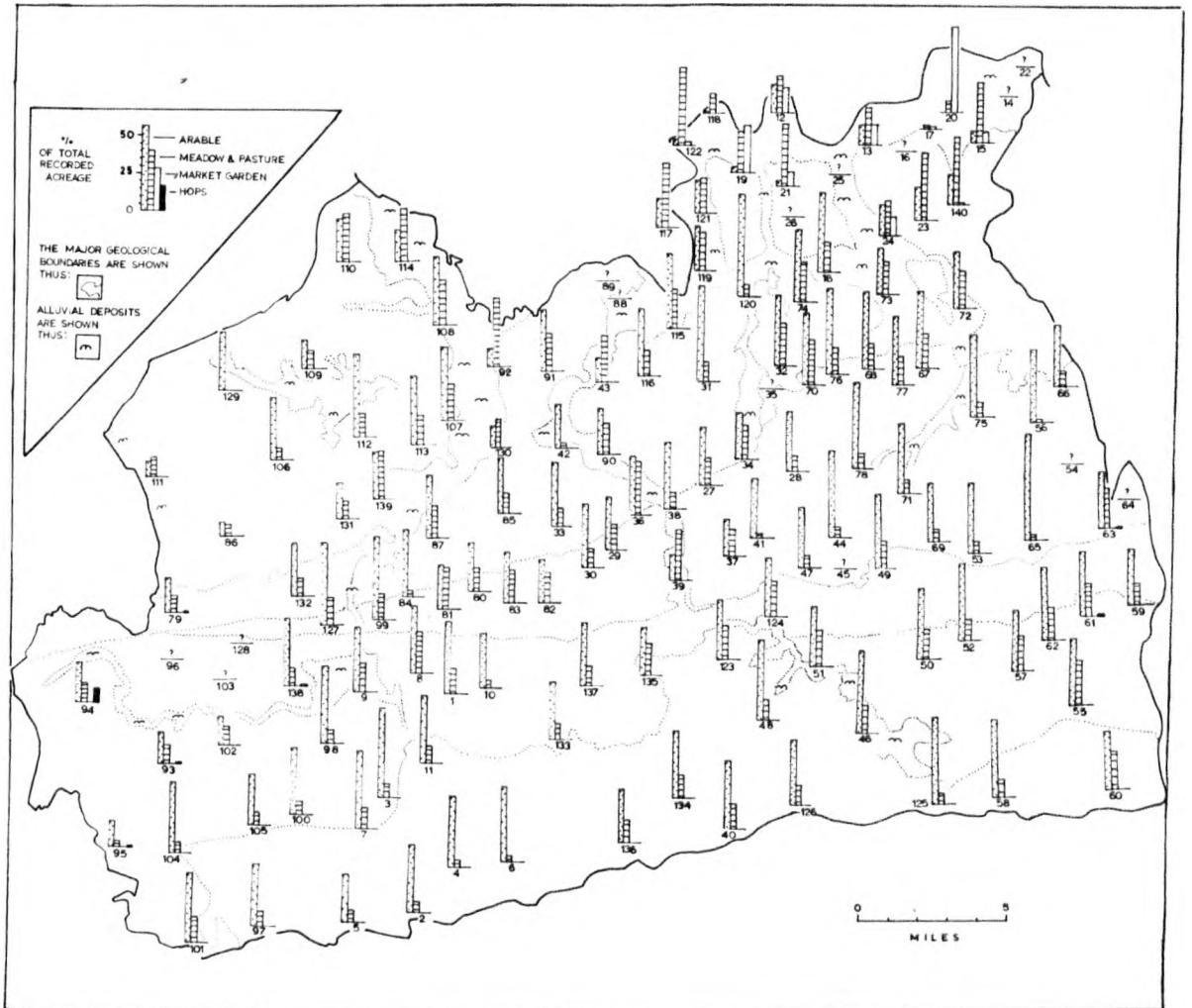


FIG.6:5. Agricultural land-use, c.1840.

Note. The acreages shown on this map are those recorded in the summaries contained in the Tithe Apportionments.

fodder production increased, the bulk of the produce being destined for London. Low stock numbers reduced the manure available to maintain crop yields and led to an increased dependence on dung carried from London as back carriage for hay, turnips and other fodder crops. In von Thunen's analysis, the distance to which manure from "the town" could be carried marked the boundary of the inner zone of intensive cultivation. In Surrey, too, this point constituted the limits of the district within which intensive agricultural systems were followed. During the period under review, the area which depended on London dung grew in extent. Thus, although Malden had been too far from London in 1800 to receive dung, by 1838, ... "the easy distance from London leads to an entire dependence on London dung for manure and cultivation is adapted in an excessive degree to the demands of the vicinity for hay and straw."³¹ The changing pattern of fodder crop production supports the hypothesis that the growth of the Metropolis resulted in an outward movement of the zone of intensive production already identified. However, the development of the railway system meant that certain types of specialist production which had developed in the Metropolitan Margins were no longer exclusively situated there. This was true even of the fattening of pigs and oxen in distillery or brewery, which had been a useful way of utilizing a by-product which was difficult to transport elsewhere because of its bulk and nature. The old pattern continued but increasingly the spent grains were sold to grain merchants, who passed them on to farms some distance from London, in north Surrey and farther afield.

The production of liquid milk also became less tied to the town. In 1840 the pattern of production was essentially that observed for 1801. Suburban expansion mostly took place near to existing growth points, and whilst the numbers of dairy cattle increased, their distribution was little changed.³² Even at 1870, the town cowhouses were responsible for a considerable proportion of south London's milk supply, although milk was also carried by rail from other parts of Surrey and from further afield. The methods of production described by Chalmers-Morton in 1868 were no different

from those portrayed by the Reporters to the Board of Agriculture at the beginning of the century.³³

The outbreaks of cattle plague, in the mid-1860's, have been seen as the turning point in the shift of this form of liquid milk production away from the London area. Chalmers-Morton estimated that "...more than half the cows disappeared and the delivery of milk has increased."³⁴ Whilst one would not dispute the shift in emphasis away from the town cowhouse, this estimate may be too large. The official record suggests that losses were not as great as has sometimes been supposed. Chalmers-Morton stated that there were 24,000 cattle in the Metropolitan district before the outbreak, while the Cattle Plague Returns show that after the disease had been raging for four months, there still remained over 37,000 cattle in the Metropolitan district.³⁵ While the incidence and effect of the cattle plague is open to question, the Metropolitan Margins was still in 1870 the foremost area of liquid milk production in the county (Fig.8:6).

TABLE 4. The incidence of cattle plague, Dec.1865-Mar.1866.

	Total numbers of cattle attacked since the start of the disease.			Stock of cattle 5th March 1866.
	Dec.1865.	Jan.1866.	Mar.1866.	
Surrey	1180	1278	1287	22,037
Metropolitan Police District	7013	7418	7701	37,787
England and Wales	29,329	64,376	197,701	3,848,455

Source: P.R.O. P.C.1. 1885.

Furthermore, at the end of the century, this feature of land-use was still manifest, since nearly 300 cowhouses were recorded in the inner suburbs of Surrey in 1889.³⁶ However, the demand for milk from a rapidly growing suburban population was to be satisfied by producers

in areas where lower rents and labour costs favoured cheaper production. By 1892, the urban cowhouse accounted for an estimated 21.5% of London's daily supply; of the remainder, 76.2% came to the Metropolis by rail.³⁷ Ten years earlier W.C.Little had stated that milk was sent to London "...from as far as Highbridge (Somerset) on the London and South-Western and may well come from ... Devon on the South-Western."³⁸ The effects of the railways were thus expressed in changes in the relative importance of the Metropolitan Margins, which had previously monopolized the market for liquid milk.

Similar changes occurred in the distribution of market gardens. During the pre-railway years, the acreages of market garden were swollen in areas where they had already existed at the beginning of

TABLE 5. The growth of the milk trade on two railway routes into London, 1864-1867.

	1864	1865	1866	1867
London and Brighton	54,004 gals.	220,000	368,000	420,000
South Western	400,000 gals.	-	1,510,000	1,480,000

Source: 1864 - R.H.Rew, "An Inquiry into the statistics of milk and milk products in Great Britain," Journal of the Royal Statistical Society, XIV. 1892.

1865-1867 - J. Chalmers-Morton, 'Town Milk,' Journal of the Royal Agricultural Society of England, 2nd Series, 4. 1868.

the century. An outward movement was in evidence but this was not associated with the establishment of new centres of production. However, changes in acreages tended to reflect the pattern of suburban expansion and the consequential competition for agricultural land. In Camberwell there was an increase of 120 acres, between 1801 and 1840.³⁹ During the same period, neighbouring Lambeth experienced greater suburban expansion and the acreage of market garden was

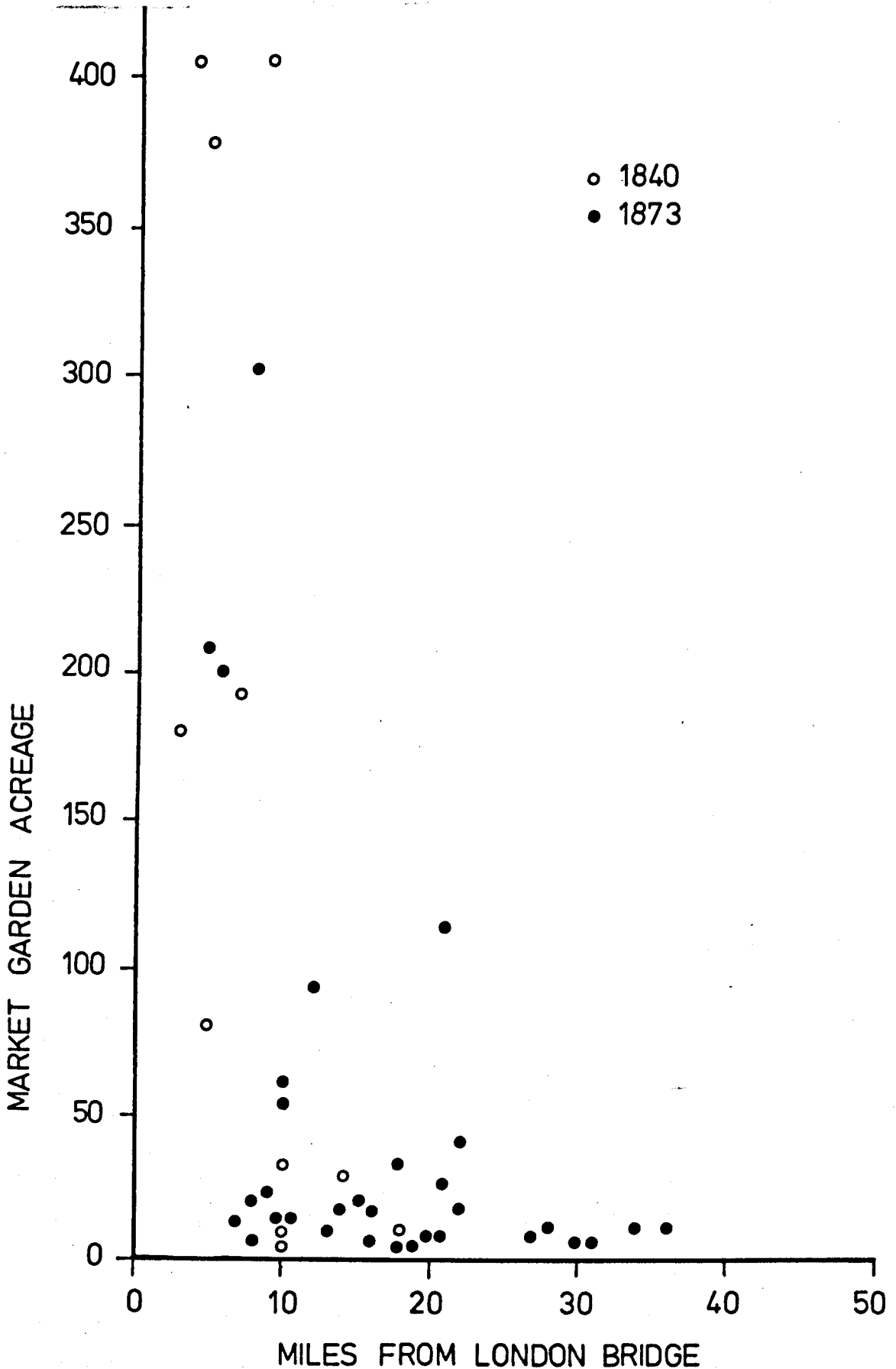


FIG.6:6. Market garden acreage and distance from London in 1840 and 1873.

Note. The dots refer to those parishes for which market garden acreages were recorded in the Tithe Apportionments and the Agricultural Returns 1873, P.R.O. M.A.F. 68.317.

reduced accordingly. Even in 1826 Allen had observed that, "...at the end of the eighteenth century market gardens occupied about 250 acres but since the rapid increase in building they have been diminished."⁴⁰ The effect of suburban growth was not simply to push market gardening outwards so that, like the town cowhouse, it continued to occupy the fringe of the built-up area. Locations near to the expanding suburban fringe, where the growth of the urban area meant increased distance from both market and manure were less attractive than the Thameside districts, where cheap river transport was available together with stretches of alluvial soils. Thus between 1801 and 1840 the market garden acreage grew by 33% in Barnes, by 50% in Putney and by 600% in Mortlake, which with 412 acres, contained the largest concentration of garden ground in the county.⁴¹

After 1840 the growth of the railway network and the development of omnibus routes brought the prospect of suburban expansion to those Thameside areas in which gardening had been increasing in importance. A comparison of the distribution and size of the areas of production at c1840 and 1873 (Fig.6:6) shows that, in 1840 there were a small number of fairly large acreages within ten miles of London.⁴² By 1873, few parishes included acreages in excess of 100 acres and all these were ten to twelve miles from the Capital, but many small acreages of garden ground, of less than twenty acres in extent were situated at locations ten to forty miles from London. The latter included market gardens created on the light lands of the western heaths after Enclosure, but even more consisted of gardens developed on the fringe of suburban settlements such as Croydon or Redhill.

The transport revolution gave the balance of advantage to low-cost producers in Bedfordshire, Essex and Hertfordshire, which now began to become important centres for the production of fresh vegetables. In Surrey, the market gardeners of the Metropolitan Margins saw specialization as a means of combating rising costs and increased competition. In Battersea, on a reduced acreage, the landholders

	I		II		III		IV	
	1831	1871	1831	1871	1831	1871	1831	1871
A Alluvium	33.2	23.3	10	10.3	12	11.1	12	8.3
B Bagshot Sands	23.3	10	7	6.9	10.4	2.8	6	2.8
C London Clay	3.4	36.6	14.2	17.2	22.2	16.7	26.2	5.6
D Chalk and Clay with Flints	10	10	34	6.9	22.2	22.2	29	30.6
E Lower Greensand.	6.8	6.6	14.2	21.7	16	16.7	3	11.1
F Weald Clay	16.3	3.3	7	21.7	6.4	19.4	3	16.7
G Strip Parishes	6.8	10	14	17.2	10.4	11.1	21.1	11.1

Key to Figs. 6:7 and 6:8. and numerical summary.

Note. The number of people employed in agriculture per 100 acres of agricultural land in each parish at 1831 and 1871 (shown in figures 6:7 and 6:8) are here arranged in quartiles numbered I - IV and by the predominant geological outcrop contained within the parishes. Thus in 1831, 33.2% of the upper quartile was accounted for by parishes in which alluvial soils predominated.

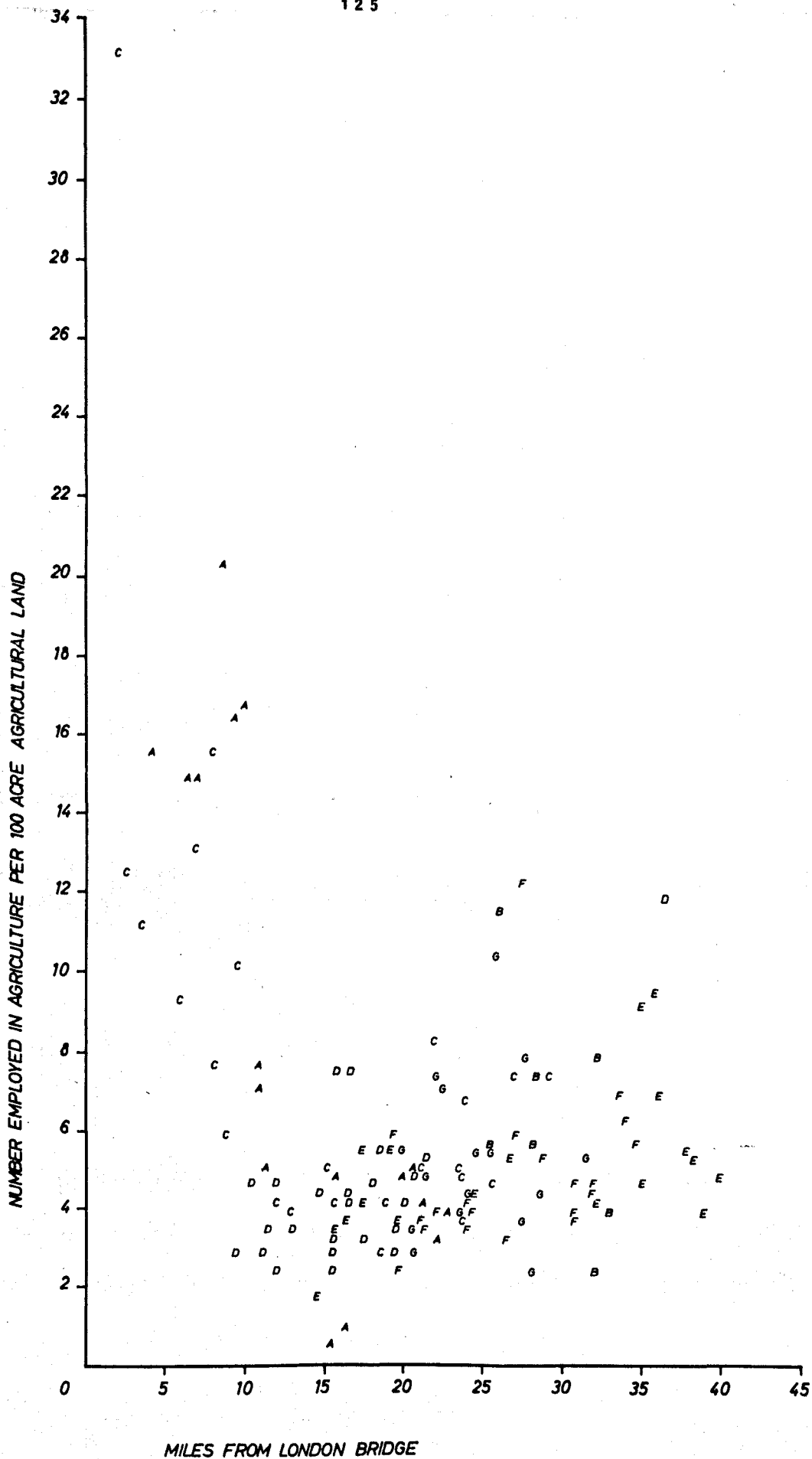


FIG.6;8. Employment in agriculture, 1871.

turned their attention to "...articles of limited consumption, such as cauliflowers, radishes, asparagus and forced vegetables."⁴³ At the same time, a number of Surrey market gardeners migrated to new centres of production in Essex. There was little alternative, for "London too, has encroached on the former scene of spade labour, and the old gardens in Surrey have been devoted to a large extent to other uses."⁴⁴

The outward migration of the limits of the Metropolitan Margins, was associated with an increase in the intensity of agricultural activity. A comparison of the labour inputs per 100 acres of agricultural land at 1831 and 1871 (Figs.6:7; 6:8) shows that the Thames alluvium was using less labour by 1871, while the London clay had become more labour intensive. This change was symptomatic of the outward spread of intensive land-use systems, associated with the expansion of the Metropolitan Margins; it also bears witness to the changing fortunes of the formerly prosperous alluvial lands bordering the Thames and those districts where rapid suburban development was taking place. Agriculturalists in these inner districts were faced with rapidly rising land values and increased competition from areas whose new found accessibility to London gave them a considerable advantage over the higher cost producers nearer to the Capital. Methods of production near to the Metropolis were already highly intensive and output could not be significantly raised to cover rising costs. Viewed in this light, the growing proximity of the rural and urban environments, together with the transport revolution, brought prosperity to the landlord but was potentially ruinous to his tenant. Only those who did not wholly rely upon the produce of the land could afford to farm it. This pattern of change finds support in the arguments of Grotewold and Sinclair, who suggest a reversal of the rings of intensity around an expanding central city.⁴⁵ In Surrey, however, it is only the Metropolitan Margins which furnish evidence of such a change. Here the premise upon which most models of agricultural location are based, the desire to maximise profit, was itself in question by 1870. At 1800 this district exhibited an agricultural pattern similar to

that of the inner zones of the "Isolated State." Seventy years later, this pattern was in process of disintegration, to be replaced by a more complex model, comparable to that postulated by Hoover in 1948.⁴⁶ If the physical constraints could have been set aside, a series of transect lines radiating from London across north Surrey, would have yielded a variety of gradients of economic rent, thus defying the organization of land-use into the latitudinal zones identified at the beginning of the century.

¹Great Britain, Laws, Statutes, etc., Egham Enclosure Act, 1814, 54 Geo.III, ch.153.

²E.Malden, ed., The Victoria County History of Surrey (London:1912), Vol.IV, p.37.

³Great Britain, Laws, Statutes, etc., Metropolitan Commons Acts, 1866 and 1869, 29 and 30 Vict. ch.122; 32 and 33 Vict. ch.107.

⁴J.D.Casswell, How Wimbledon and Putney commons were saved, (London:n.d.).

Minet Library, Papers in connection with the proposed enclosure of Wimbledon Commons, No.30.

G.W.R.Green, The Story of Wandsworth and Putney (London:1925).

⁵The Vestry Minute Books for Tooting record a similar conflict and in 1863 a committee was formed to "safeguard the rights of the parish in reference to the proposed enclosure of the common by the Lord of the Manor".

W.E.Morden, A History of Tooting Graveney (London:1897), p.142.

The Wandsworth Common Act (1871) vested control of the Common in the hands of Conservators who were superceded by the Metropolitan Board of Works in 1887.

Green, Wandsworth and Putney.

In similar vein the Enclosure Act for Rush Common stipulated that "no buildings or erections above the surface of the earth be erected upon Rush Common within 150 feet of the London to Croydon Turnpike." This Common consists of a narrow strip of land which runs the length of Brixton Hill. The provisions of the Act produced a building line which still lies some distance from the roadway.

L.C.C., Survey of London, Parish of St. Mary Lambeth.

⁶Great Britain, Laws, Statutes, etc., Lorrimore Common Enclosure Act, 1769, Priv. Act, 10 Geo.III, ch.72.

Great Britain, Laws, Statutes, etc., Walworth Common Enclosure Act, 1769, Priv. Act, 10 Geo.III, ch.72.

Great Britain, Laws, Statutes, etc., St. George's Fields Enclosure Act, Loc. Act, 50 Geo. III, ch.191.

H. and J. Smith, The Spread of London (London:1813).

⁷ Malcolm, Compendium of Modern Husbandry, p.124.

⁸ Great Britain, Public Record Office, Tithe Assistant Commissioners' Reports, I.R.18, 13554; 13560; 13566; 14809.

Surrey Record Office, Tithe Apportionments.

Great Britain, Public Record Office, Agricultural Returns, 1870, M.A.F. 68.261.

⁹ Ibid.

Great Britain, Parliament, Parliamentary Papers, 1859-60, Vol. XXXIX, Assessments to the Income Tax.

¹⁰ Great Britain, Public Record Office, Agricultural Returns, 1870, M.A.F. 68.261.

Great Britain, Public Record Office, Agricultural Returns, 1873, M.A.F. 68.318.

An attempt was made to compare the numbers of occupiers of land recorded at the 1831 Census with the figures derived from the Agricultural Returns of 1870, but the results were inconclusive.

¹¹ Great Britain, Parliament, Parliamentary Papers, 1869, Vol. XIII. Second Report of the Royal Commission on the employment of children, young persons and women in Agriculture.

¹² The Income Tax Returns before 1859-60 failed to differentiate between assessments based upon agricultural and other land, consequently parishes which included urban areas carried much inflated values which masked the agricultural land values. For a full discussion of the problems involved in using these sources see:

Grigg, Agricultural Revolution, pp.175-178, 194-6.

D.B. Grigg, "An index of regional change in English farming," Transactions of the Institute of British Geographers, XXXVI, (1965).

¹³ Surrey Record Office, 85/2/92.

¹⁴ Surrey Record Office, 80/3/6.

¹⁵ Surrey Record Office, 85/7/32-4.

¹⁶Stevenson, General View, p.89.

¹⁷City of London Archives, Christ's Hospital Estate View Books, Vol.4. 1796, M.S.12834.

City of London Archives, Christ's Hospital Estate View Books, Vol.6. 1845, M.S.12834.

¹⁸Ibid.

¹⁹Surrey Record Office, 84/9/74.

²⁰City of London Archives, Christ's Hospital Estate View Books, Vol.5. 1817, M.S. 12834.

²¹City of London Archives, Christ's Hospital Estate View Books, Vol.6. 1845, M.S. 12834.

²²Surrey Record Office, Monson Estate Records, Acc.1011; Barrow Green Estate Records, 87/32/102-4.

²³Surrey Record Office, Barrow Green Estate Records, 87/32/104.

²⁴This hypothesis might follow from an application of the principles underlying part I of von Thunen's work.

²⁵Great Britain, Public Record Office, Tithe Assistant Commissioner's Report, Streatham, I.R.18, 13560.

²⁶Ibid.

²⁷Great Britain, Parliament, Parliamentary Papers, 1833, Vol.V. Report of the Select Committee to enquire into the present state of agriculture and of persons employed in agriculture, Q.11628.

²⁸Great Britain, Parliament, Parliamentary Papers, 1836, Vol.VIII. First Report of the Select Committee on agricultural distress, part I. Q.846.

²⁹H.Evershed, "On the farming of Surrey," Journal of the Royal Agricultural Society of England, 1st Series, XIV,(1853),p.418.

Surrey Record Office, 84/9/76; 84/11/11; Acc.388/7; Acc.317, Box 563 (11); 85/2/91.

City of London Archives, Christ's Hospital View Books, Vol.6. 1845, M.S.12834.

³⁰Stevenson, General View, pp.520-521, 534-536.

³¹Great Britain, Public Record Office, Tithe Assistant Commissioner's Report, Malden, I.R.18, 10161.

³²The Tithe Assistant Commissioners recorded: 71 milk cows in Kennington, 60 in Lambeth, 251 in Newington and an unspecified number in St. John's Parish, Waterloo.

Great Britain, Public Record Office, Tithe Assistant Commissioner's Reports, I.R.18, 10204; 13555; 13556; 13559.

³³J. Chalmers-Morton, "Town Milk," Journal of the Royal Agricultural Society of England, 2nd Series, IV, (1868).

³⁴Ibid.

³⁵Ibid.

Great Britain, Public Record Office, Cattle Plague Enquiry, weekly return of reported cases of Cattle Plague in Great Britain, P.C.1. 1885.

The weekly returns collected through the Quarter Sessions are not above question, since they do not give the stock of cattle at the start of the outbreak, nor do they distinguish dairy cattle from other cattle. There may well have been an underestimate of the impact of the disease since "...the making of the return is entirely voluntary, but it is obviously important that the Government should possess a full and accurate knowledge of the supply of livestock in the county."

Surrey Comet, February 3, 1866.

³⁶Greater London Council Record Office, Register of Cowkeepers, Dairymen and Purveyors of Milk, Vol.6. 1889-92, PH/REG/32.

³⁷R.H. Rew, "An enquiry into the statistics of the production and consumption of milk and milk products in Great Britain," Journal of the Royal Statistical Society, XIV, (1892).

³⁸Great Britain, Parliament, Parliamentary Papers, 1881, Vol.XVI, Report of the Royal Commission on Agriculture, Digest and Appendix to Part I, Reports of Assistant Commissioners, No.67, 117.

³⁹Great Britain, Public Record Office, Crop Returns, 1801, H.O.67.
Surrey Record Office, Tithe Apportionment, Camberwell, 1840.

⁴⁰T. Allen, A History of Lambeth (London:1826), p.9.

⁴¹Great Britain, Public Record Office, Tithe Assistant Commissioner's Reports, I.R.18.

Female Irish labour was often used in the market gardens. In Mortlake there was a sufficiently large Irish Catholic community engaged in working in the gardens, to warrant the construction of a Roman Catholic Church.

Great Britain, Public Record Office, Crop Returns, 1801, H.O.67;24.
C.M. Rose, Nineteenth Century Mortlake and East Sheen (Mortlake:1961).

⁴²Surrey Record Office, Tithe Apportionments.

Great Britain, Public Record Office, Agricultural Returns, 1873, M.A.F. 68. 318.

The Agricultural Returns for 1873 were used because this was the first year in which market garden land was separately recorded.

⁴³H. Evershed, "Market Gardening," Journal of the Royal Agricultural Society of England, 2nd Series, VII, (1871), p.420.

⁴⁴Evershed, "Market Gardening," p.420.

⁴⁵A. Grotewold, "von Thunen in Retrospect," Economic Geography, XXXV, (1959).

R. Sinclair, "von Thunen and Urban Sprawl," Annals of the Association of American Geographers, LVII, (1967).

⁴⁶E.M. Hoover, The Location of Economic Activity, (New York:1948).

PART III

RURAL SURREY 1800-1870.

VII. POPULATION, TOWNS AND TRANSPORT

A region of stability

The towns in the countryside

The transport revolution and the towns of Surrey

Accessibility and agricultural land-use

Transport costs and agricultural land-use

VIII. AGRICULTURAL CHANGE

Changing land values

Agricultural land-use

IX. CONCLUSIONS

CHAPTER VII
POPULATION, TOWNS AND TRANSPORT

A region of stability.

Away from London and its suburbs, the rural districts and the towns which served them were distinguished by gradual population change. Beyond the Metropolitan Margins, there was no correlation between distance from London and rate or amount of population change. Thus, the Weald clay parishes included some of the most remote parts of Surrey, while the dip-slope parishes of the Downs were nearer to the Metropolis than most of it. Yet, together, they account for the majority of the places where the smaller increases and lowest rates of change were recorded (Fig.7:1). Elsewhere in rural Surrey, rapid population growth was rare, although decreases which might have been the concomitant of nearby suburban growth, were not in evidence. The Enumerators' Books for Redhill reveal that many of those who had been attracted to this new town had come from the surrounding rural parishes. However, migration here, as elsewhere, was insufficient to produce absolute decreases in the exporting areas, although rates of increase throughout rural Surrey were generally small (Figs.7:1a; 7:1b). Nevertheless, between 1851 and 1861, the predominantly rural Enumeration Districts of Hambledon and Dorking had an excess of births over deaths, which was greater than the population increase during these years. There was clearly some population loss through migration.¹ The west and south-west included districts as remote from London as the Weald and yet they were areas of above average increase. The changing pattern of agriculture in these light soils districts affords at least a partial explanation of these trends. The enclosure and subsequent reclamation of commons and heaths, together with the widening of the cropping spectrum through the addition of labour intensive fodder crops, created an increased demand for agricultural labour.² For north Surrey, population increases were commonplace, whereas in the rural areas they were rare and mostly temporary. Betchworth received an increment of eighty-nine men in 1821 employed in making alterations to Betchworth House and grounds.³

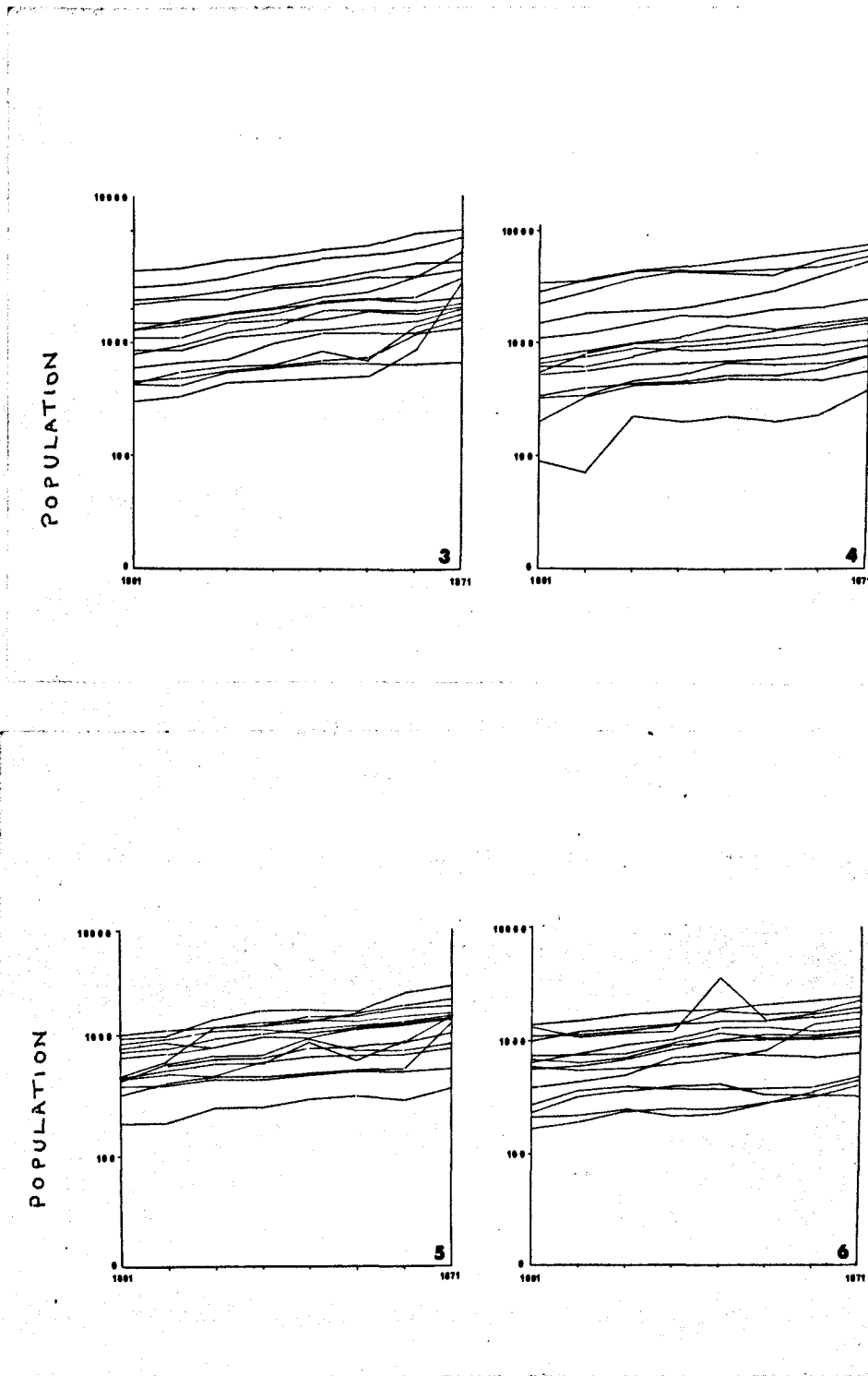


FIG. 7:1a. Population change in rural Surrey,
1801-1871.

Note. The graphs show the form of population change for those parishes contained in deciles 3 - 10 according to the total amount of population change during this period. These deciles consisted almost entirely of those parishes included within rural Surrey at 1871.

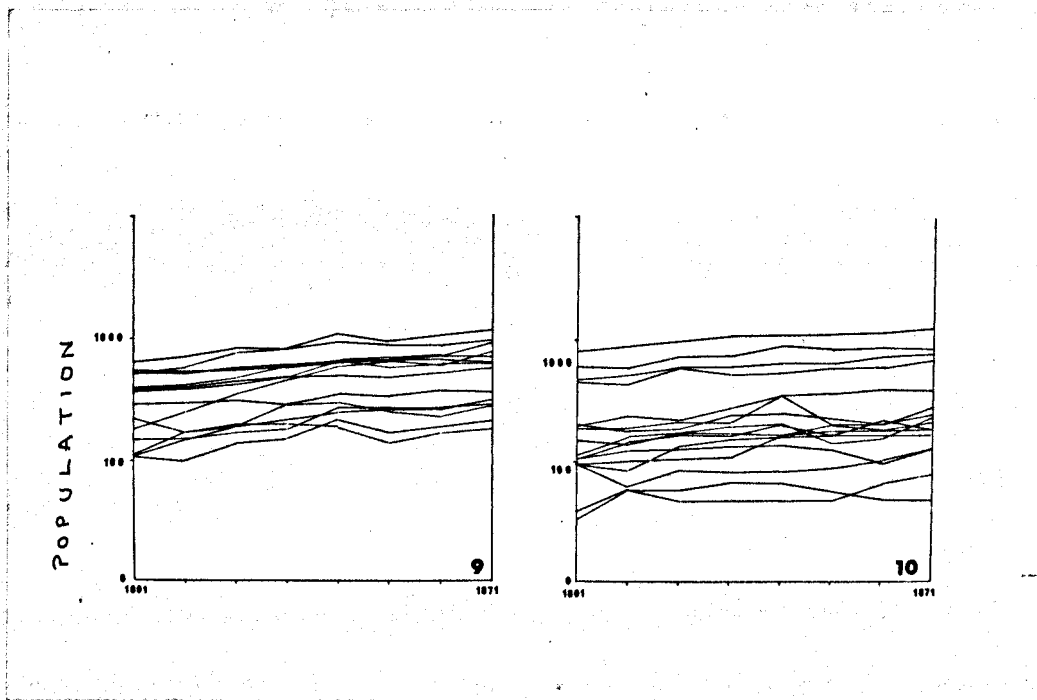
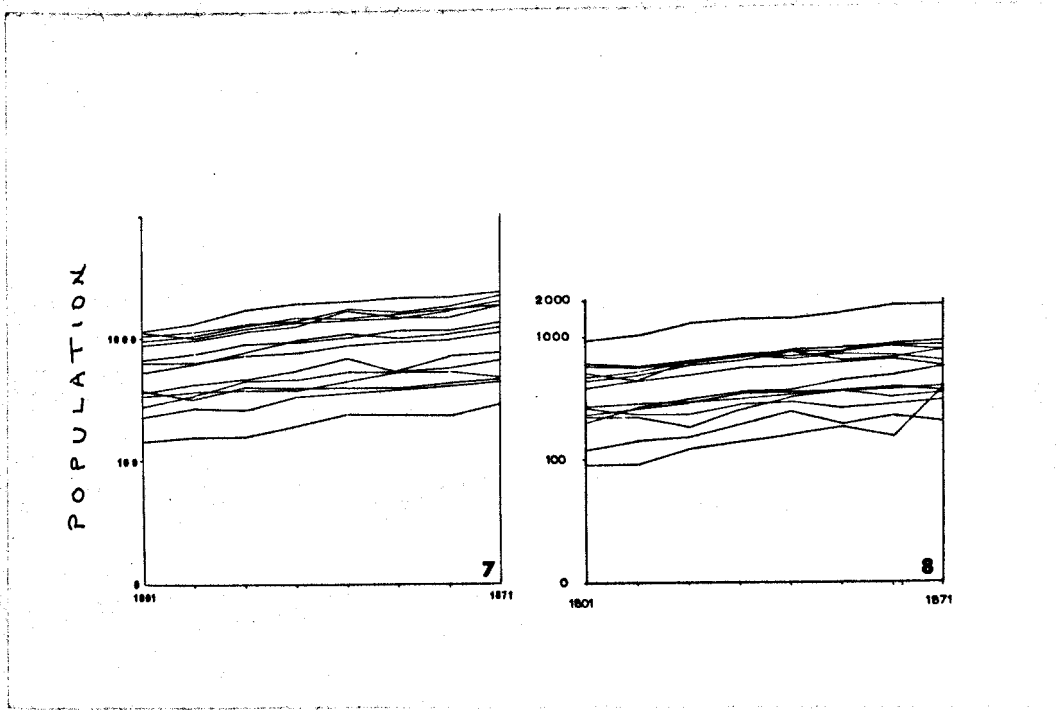


FIG. 7:1b. Population change in rural Surrey, 1801-1871.

But it is to the building of the railways that one must look for the most startling instances of short term population increase. In 1831 and 1851, Betchingley had 1203 and 1553 inhabitants, but in 1841, the numbers had been swollen by 2000 railway labourers and their families in "temporary huts and cottages since removed."⁴ Nearly all of the parishes near to the line of the London, Brighton and South Coast Railway were subject to these temporary influxes in 1840-1841.

Those towns which were largely untouched by suburban expansion appear in the two central deciles astride the median, their rates of change having more in common with the rural parishes than with the expanding suburban areas. Here was town and country in a different guise, a reciprocal relationship rather than one of urban dominance. The mushroom-like growth of Redhill and Woking draw attention to their position as islands of suburbia, situated in areas where small, but undramatic increases were the norm. Even Reigate, which was subject to a limited amount of suburban growth, was differentiated from its near neighbour Redhill by the form of its population change and by the origins of its inhabitants. Both settlements drew about 50% of their inhabitants from outside the county but Redhill received a greater proportion from outside the home counties, whereas Reigate conformed more nearly to the other rural service centres in having a considerable increment from the town itself or from neighbouring parishes. In some cases, shortlived decreases in the population of the towns were associated with the decline of small craft industries. Haslemere, Godalming and Farnham furnish examples. The silk industry disappeared from Haslemere in the 1820's and 1830's, the early years of the nineteenth century witnessed the decline of Farnham's woollen-industry, while the contraction of the hosiery industry at Godalming led to an exceptional and small counter current of migration to the Midlands.⁵

A relatively small proportion of the total population were born outside Extra-Metropolitan Surrey, and of these the neighbouring

PERSONS PER 10,000 ACRES

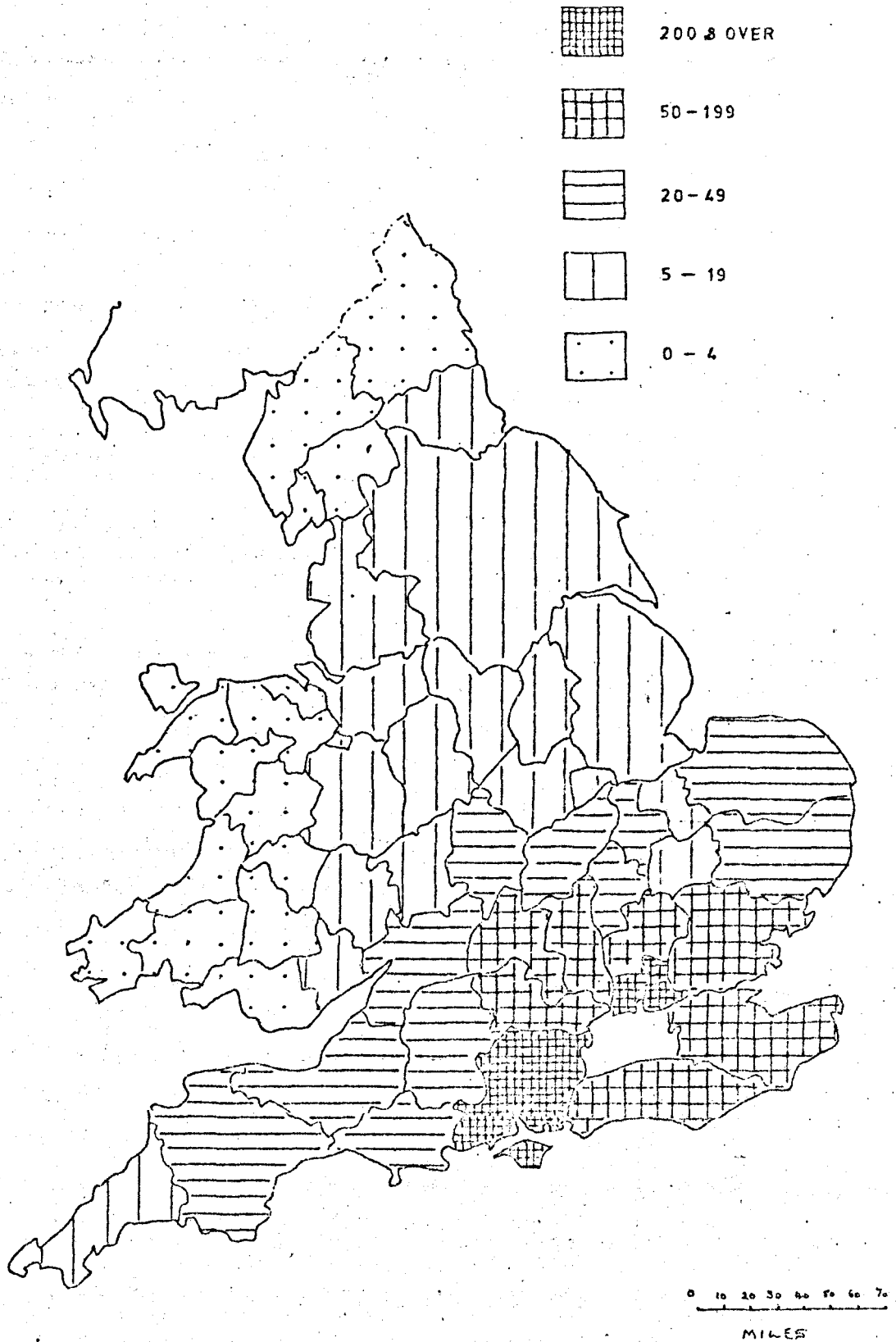


FIG. 7:2 SOURCE AREAS FOR THE IMMIGRANT POPULATION OF
EXTRA METROPOLITAN SURREY 1871

rural counties provided a greater share of the immigrant population than was the case in the Metropolitan Margins, whose source areas were more widespread (Fig.7:2). The Enumerators' Books reveal that the majority of the population of Elstead, Leigh and Horley had been born in the parish in which they were recorded in 1861.⁶ Only a small number had extra-county origins, while those born outside the parish but within Surrey had, in most cases, been born in contiguous counties. The birthplace of children tends to confirm this picture of short distance migration, rarely involving more than one move. The most stable element in the population were the agricultural labourers, most of whom were living in the parish of their birth. Even when birthplaces for this group lay outside Surrey, they were chiefly to be found in Sussex, rarely involving migrational distances in excess of ten miles.(Fig.7:3).

Short term migration for agricultural work.

While rural Surrey was characterized by a relatively stable population, there were, of course, even here, migratory movements. Labour-intensive agricultural activities such as hay-making, turnip-hoeing and harvesting, together with market gardening and the potato, carrot and pea-picking seasons were all inducements to labour migration.⁷ In the early years of the century, groups of Irishmen satisfied some of these labour needs, James and Malcolm recorded that "...reaping is generally performed by Itinerant Irishmen who at this season are found traversing the country in large bodies."⁸ The gang system declined in importance but throughout these years, districts which had seasonal surpluses of agricultural labour, such as the heavy clays, becoming important sources for temporary labour.⁹ The principal demands for migratory labour came from the market gardens and hayfields of the Metropolitan Margins, and from the light lands. The light soil districts needed extra labour in the spring for sowing, sheep shearing and the start of haymaking and in the autumn months when the cereal harvest was closely followed by ploughing and the lifting of root crops. These labour transfers were locally significant, but the most important single magnet was the hop harvest of west Surrey, centred on Farnham. The hops were

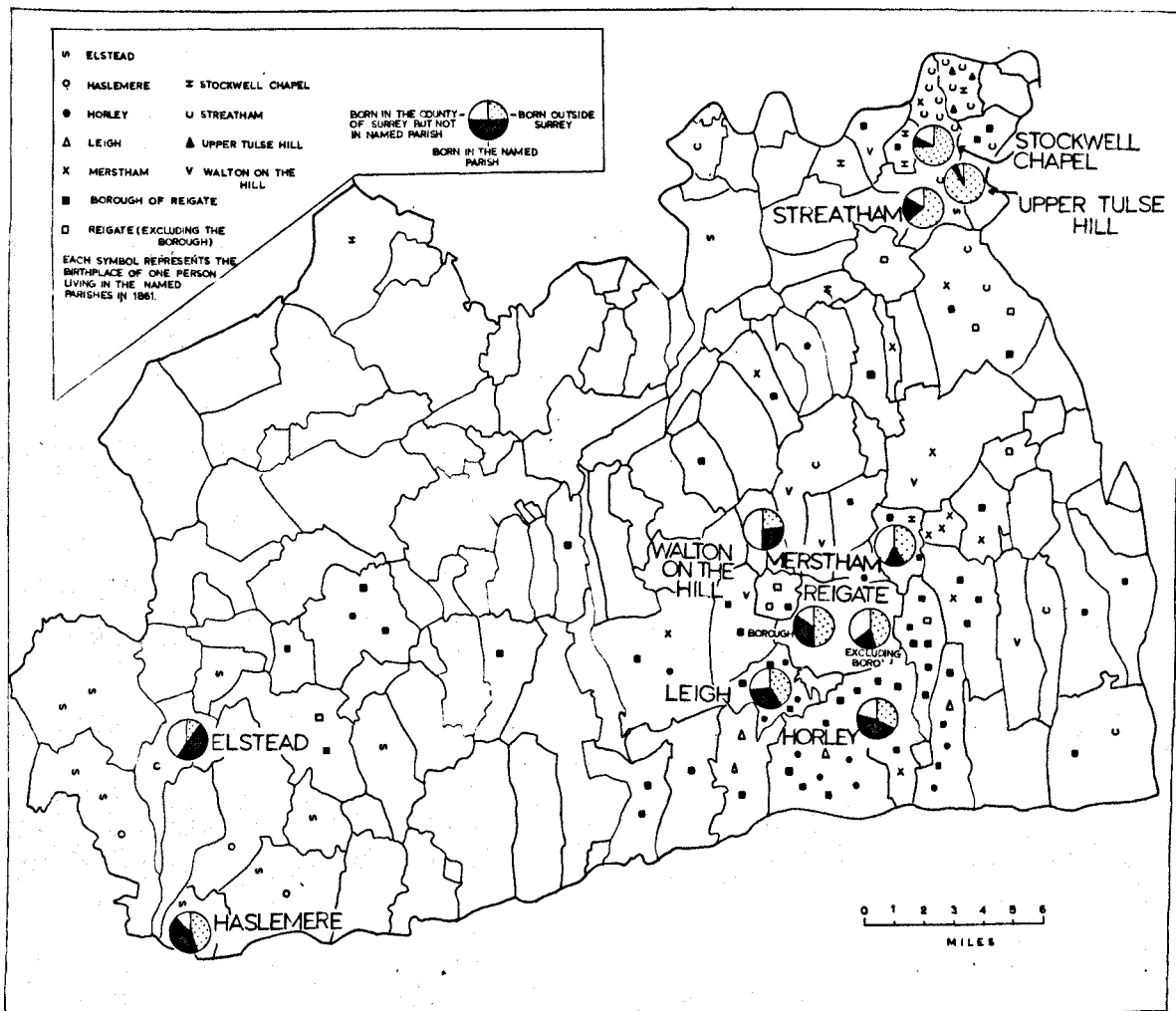


FIG.7:3. The pattern of migration, 1861.

Source: Census of Population, 1861, Enumerators' Books, P.R.O. R.G.9.363.

picked in September, when a large labour force was needed for between three and five weeks. During the years of prosperity as many as 6000 temporary labourers were employed during the hop harvest. They were accommodated in barns and sheds, often in appalling conditions. A graphic description of the hop pickers was given by Norman in 1867:¹⁰

I will take Dippenhall Farm as a specimen and describe shortly the mode in which the hop-picking is carried on there. Shortly before the picking season commences pickers are collected from the neighbouring country for many miles around through the intervention of agents despatched from the farm, who again employ local sub-agents... In due time waggons and vans are sent into all the surrounding parishes to bring in the pickers who avail themselves of this mode of conveyance... long sheds for accommodation previously used for storing guano or as cattle sheds, sometimes not well cleaned...there is frequently overcrowding and if it is a long season disease, especially if it is damp...

Rural Surrey was distinguished from the advancing suburban fringe by the absence of dramatic population change and by a fairly homogeneous employment structure, in which agricultural employment was dominant. If the percentage of the population employed in agriculture and the numbers of people employed in agriculture per hundred acres of agricultural land are plotted against distance from London, two exponential curves are produced, the first positive and the second negative (Figs.5:2; 9:2). The two graphs cross at about fifteen miles from London at the approximate boundary of the Metropolitan Margins in 1870. Within this district, distance from London was accompanied by a decrease in labour intensity in what was almost a straight line relationship. Thereafter, there was considerable variation which cannot satisfactorily be explained by reference to distance alone. On the other hand, whilst the percentage of the total population employed in agriculture was small within the Metropolitan Margins, the proportion increased in "linear" fashion, to a distance of about fifteen miles, after which change cannot be readily related to distance. All in all, movements of population, variations in its structure and in the geographical patterns of population change in rural Surrey cannot adequately be explained by reference to proximity to London.

The Towns in the Countryside.

Functional change.

For the towns which lay beyond reach of suburban growth, these were also years of gradual change. Even Croydon was on the fringe of the Metropolitan Margins until after 1840 when the railway lent impetus to suburban expansion. Nevertheless, some of the functions of the urban centres were gradually modified, although their longstanding and close ties with the countryside were retained. As the stage-coach gave place to the railway, those traders who had been nurtured by the daily flow of coaches and their passengers decreased in number (see supra. p.10). The market functions of Surrey's towns had long been overshadowed by London. Arthur Young had mentioned the "engrossing" of agricultural produce by London merchants who by-passed the country markets and bought directly from the farms. Furthermore, estate records for the 1830's and 1840's suggest that livestock were commonly sent directly to London from the larger estates. Although market functions may have been reduced, they were nevertheless retained until after 1870 by all of the urban centres, except Leatherhead and Haslemere. Indeed, in 1832, Epsom market was re-established. The steward of the Howard Estate at Ashted saw it as "...inferior only to Croydon and Guildford, much to the chagrin of Reigate, Dorking and Kingston." If the changing fortunes of the rural markets point to the strengthening of London's hold upon the rural districts to the south, the pattern of carrier services suggests that some towns retained in no small degree a measure of independence from Metropolitan influences (infra. p.148). These functional changes were of small account and the hierarchy of towns expressed in population and in the strength of commercial functions was more or less the same at 1800, 1839 and 1870.

When population is plotted against the number of commercial units, the towns fall into three clearly differentiated groups at 1839 and 1870 (Fig.7:4). At 1839, Croydon stood apart from the other settlements, by virtue of its size and number of units.

C CROYDON	Go GODALMING
K KINGSTON	Gu GUILDFORD
R RICHMOND	E EPSOM
Re REIGATE	H HASLEMERE
F FARNHAM	L LEATHERHEAD
D DORKING	

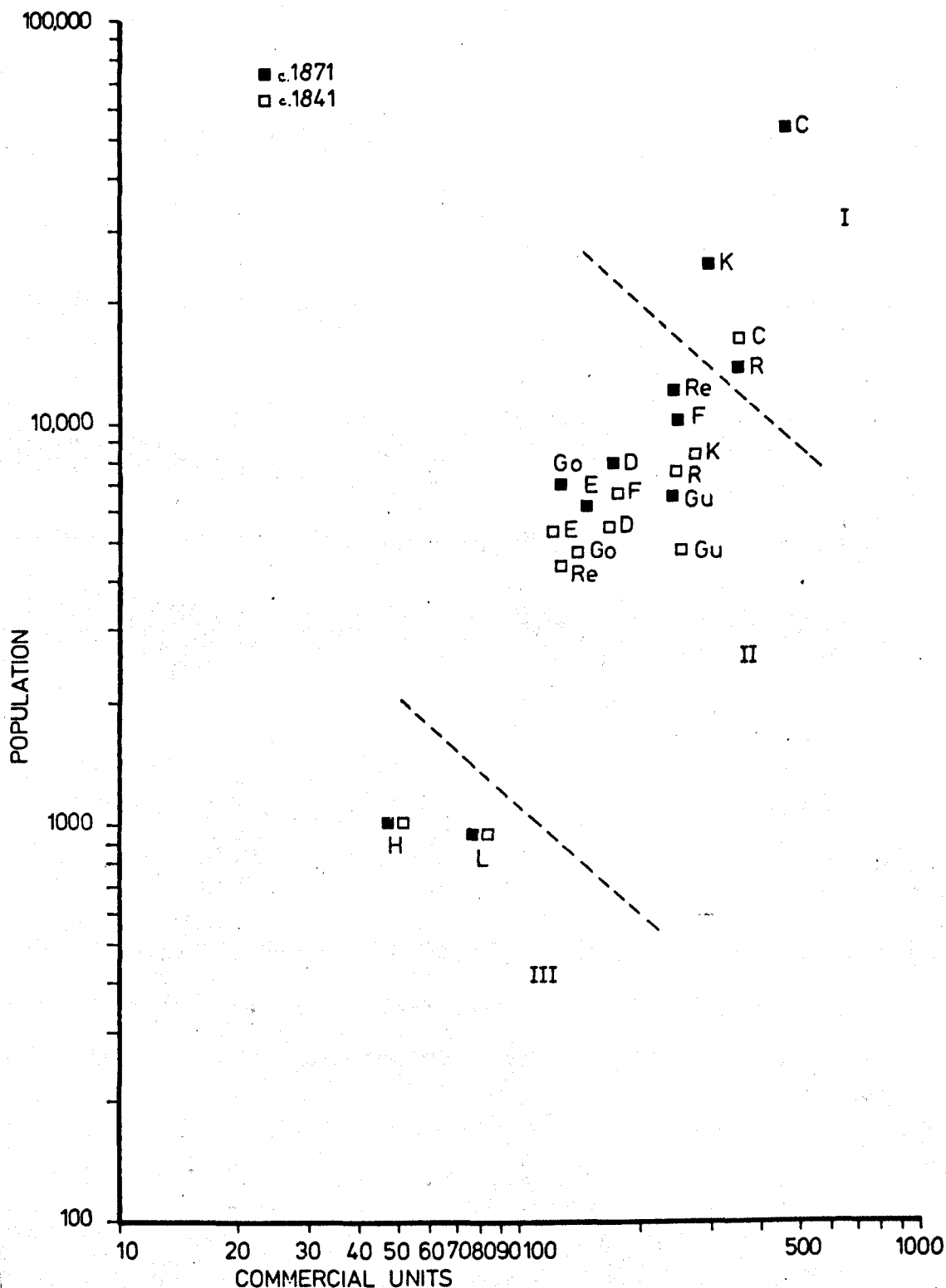


FIG.7:4. Population and commercial units for the towns of Surrey, c.1841 & c.1871.

Sources: Census of Population, 1841, 1871; Pigot and Company, Royal National and Commercial Directory and Topography, 1839; The Post Office Directory, 1870.

However, by 1870 it had increased in size and had been joined by Kingston and Richmond, which also experienced rapid suburban growth. At the other extreme lay Haslemere and Leatherhead, which remained small in size and included a limited range and number of commercial activities.

The majority of the towns fell into the second category of medium-sized towns whose functional make-up and number of commercial units scarcely changed during these years. The changes which did occur resulted in an intensification of the differences between the larger and the smaller towns, between those which became suburban centres and those which did not. Indices of dissimilarity have been calculated for 1839 and 1870 (Appendix 1).¹² In 1839, there were few differences between them. The old and at that time fairly stable market towns of Dorking, Guildford and Epsom, possessed the greatest affinities (Appendix 1a). Of the twenty-eight values which occur above the modal group (14-16), 64% are accounted for by Leatherhead, Haslemere, Reigate and Richmond. Richmond retained the distinctiveness which had been apparent at 1800. Pigot's Directory recorded in 1839:¹³

...to the number of seats and villas in the immediate vicinity of the town and the great concourse of visitors to it during the whole of the spring and summer months may be attributed its prosperity. It is a place of but trifling thoroughfare and has no manufacturers; but in every particular it exhibits the appearance of a respectable town, in which the inhabitants enjoy comfort, with a flourishing domestic trade....

Here was a town which had virtually no links with the surrounding countryside, and yet it did not begin to become a suburban centre on a large scale until after 1850. Until this time, it was the hybrid home of a part of London "society." Haslemere and Leatherhead were the smallest towns in the county. Herein lay much of their distinction, for since they were small, they did not possess a large range of commercial activities, or many high order functions. Reigate was distinguished from the other towns by proportionately more professional services, retail food units and industrial activity. The greater size of its hinterland affords a partial explanation

of this circumstance since, with the exception of Dorking, there were no other settlements of comparable size within ten miles of the town. However, the indices of dissimilarity are more eloquent to the lack of contrast between the towns. Their similarity throughout the period under review tends to confirm the picture of rural Surrey as a district in which change was slow, standing in marked contrast to the Metropolitan Margins. Furthermore, differences of size and functional make-up appear to have been quite unrelated to distance from London.

Functional segregation.

An analysis of the distribution of functions in 1839 and 1870 (Appendix I), shows that only Croydon and Richmond exhibited a high degree of functional segregation. By 1870, these settlements, together with Kingston, were a part of the Metropolitan Margins. The towns of rural Surrey were characterized by a concentration of commercial activity along their principal streets. In some instances, a sorting out of functions according to location along the main street was in evidence; in others, industry and professional services had become concentrated in one or more areas, separate from the main concentration of commercial activity. There were few changes between 1839 and 1870. Towns which were at stage I or stage II at the first date remained at the identical stage of segregation thirty years later. The degree of concentration of functions was limited. While the towns remained small, competition for prime locations was less likely to induce those activities which had no special need to be located at these points to move elsewhere. Nevertheless, there is some evidence for an areal pattern of functions. In Reigate, Bell Street though smaller than High Street, had almost the same number of industrial premises. Similarly, in Guildford, the High Street was of overwhelming importance as the commercial centre of the town, but North Street carried a greater proportion of industrial establishments than size alone might suggest. The tendency for industrial premises to move away from the principal street was related to their greater flexibility, which meant that they could seek locations where more

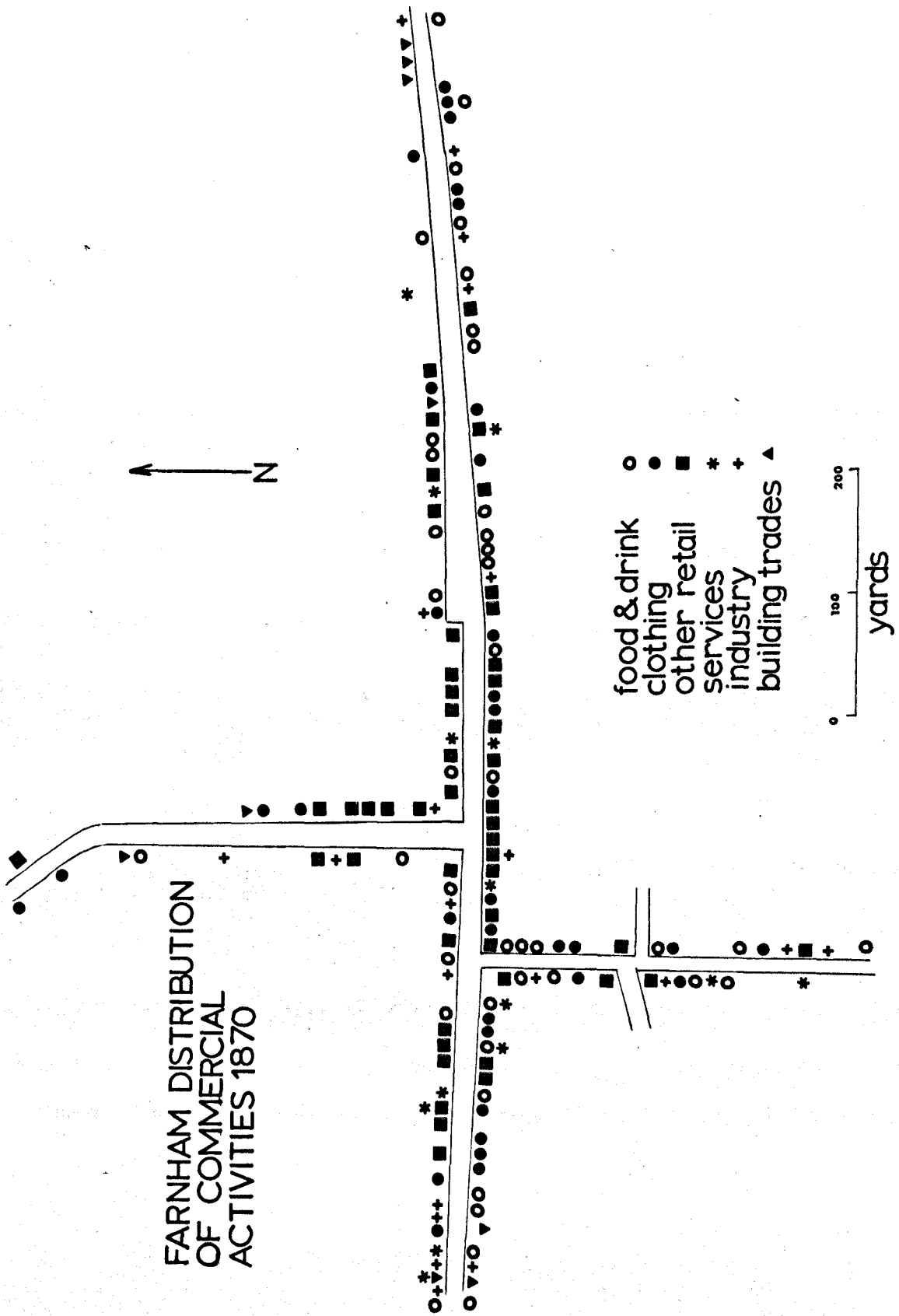


FIG.7:5. The distribution of commercial activities in Farnham,1870.

Source: The Post Office Directory, 1870.

space was readily available at lower prices. Even in 1839, Croydon was a larger and more complex centre. Although it still served a largely rural area, it stood on the very brink of dramatic changes which were shortly to divorce it from the countryside.¹⁴ The High Street contained a balanced distribution of functions, but lower Croydon (Market Street and Surrey Street), consisting largely of small streets and alleyways, owed its distinctive character to a predominance of food retailers and an absence of clothing and professional services. Indices of dissimilarity for the High Street, compared with Surrey and Market Streets and Bell Hill, are 23.7, 55.2 and 38.4 respectively, thus confirming the distinctive nature of lower Croydon at this time. The greater accordance between High and Surrey Streets (Appendix Ij), points to their shared prominence as the principal centres of small scale industries in 1839.

The other large towns showed less zoning of activities. It was in evidence nevertheless. Kingston's main commercial areas, Norbiton, Thames and London Streets, together with the Market Place, were multi-functional (Appendix Ig). Clarence Street, as its name suggests, was relatively new; it had been developed as the approach road to the recently built Thames Bridge, and ran along the periphery of the commercial core, part of which had been demolished to make way for it. By 1839, it was beginning to emerge as a retail area, concentrating on the clothing trade.

Farnham remained typical of the other rural service centres in its functions and in the distribution of its commercial activities. The location of its commercial units has been reconstructed for 1870 (Fig.7:5). Little grouping of functions is evident. The decline of the retail clothing trade, a feature shared with most of the small towns, meant that the central area, the Borough, lost some of the special character it had possessed in 1839. However, the specialized retailers, stationers, booksellers, jewellers and a single photographer were located here. Away from the centre of the town, retail traders decreased rapidly, and along East and West Streets were interspersed

with building trades, the workshops of small industries and residential land-use. Similar patterns were evident in most of the towns outside the Metropolitan Margins and also unaffected by suburban development. The absence of functional segregation was a concomitant of size, particularly the absence of growth which brought with it competition for the premier frontages. Their rate of physical and functional change distinguished the new towns and the newly built districts of Croydon, Reigate and Richmond from the towns in the countryside, where gradual change was the rule. Thus, for example, in 1839, there were four retail traders at Redhill, by 1851, sixteen and by 1870, seventy-four. The hinterlands of the rural service centres were uncomplicated by suburban growth, their functional components reflected their links with the countryside they had grown to serve. George Sturt, the Farnham wheelwright, eloquently summarized the continuing relationship of the rural service centres with their hinterlands when he wrote that:¹⁵

...the objects of the work too were provincial. There was no looking far afield for customers, rarely more than five miles away; millers, brewers, a local grocer or builder or timber merchant or hop grower, for such and no others did the ancient shop still cater as it had done for nearly two centuries.

The transport revolution and the towns of Surrey.

For the urban settlements of rural Surrey, passenger communication with the Metropolis was of small importance throughout these years. The stage coaches passed through extra-Metropolitan Surrey but served it only incidentally. Whilst the pattern of routes in the 1820's (Fig.5:7) provides evidence of the influence of London upon south and south-central England, it also points to the self-sufficiency of the country towns, the stopping places and staging posts on what were essentially long distance routes. However, there was a demand for transport within the hinterlands of these towns, a service which was provided by the carrier, who remained throughout a feature of the nineteenth century scene. An examination of carrier routes in 1839 and 1870 (Figs.7:6; 7:7) suggests that London's influence diminished considerably beyond the Metropolitan Margins. The larger rural service centres, Guildford, Godalming and Farnham, were the nodes of a mesh of

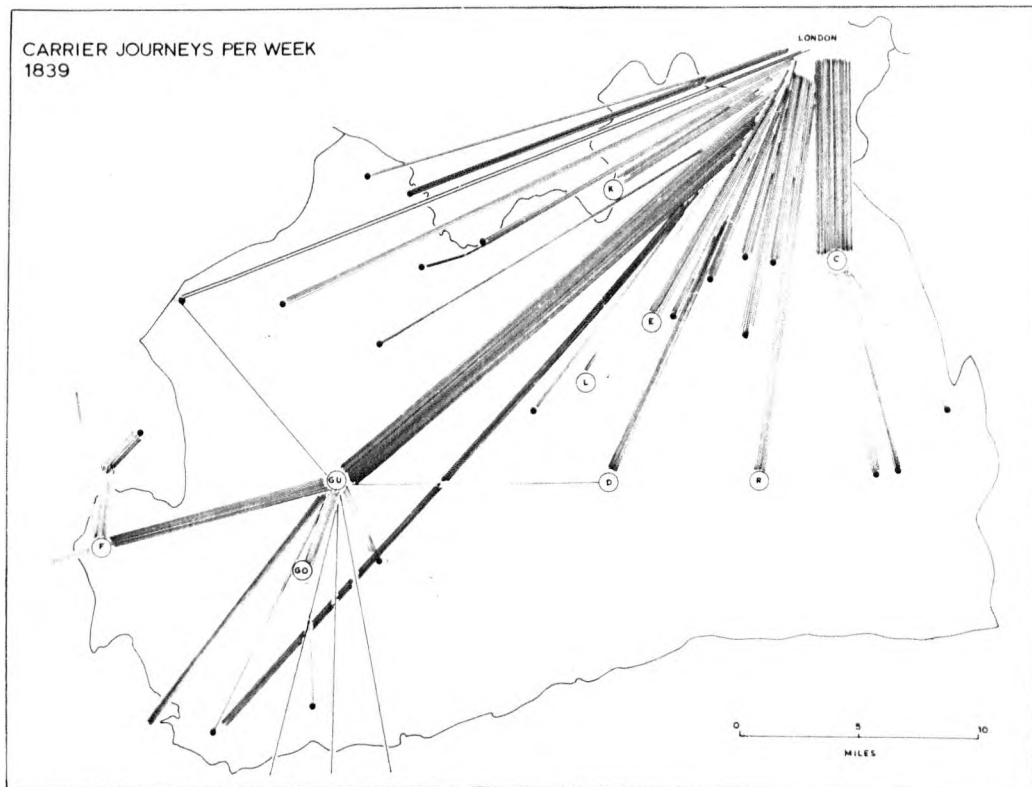


FIG. 7:6.

Note. Each line represents one journey per week. For abbreviations see figure 7:7.

Source: Pigot and Company, Royal, National and Commercial Directory and Topography, 1839.

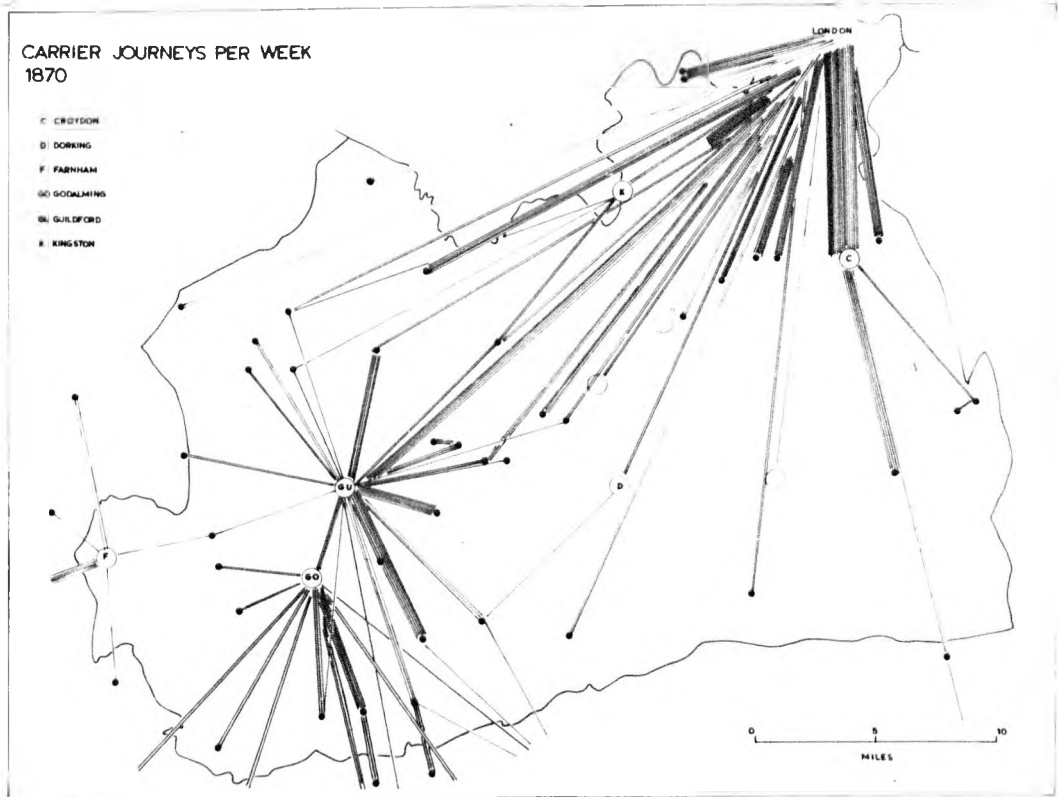


FIG. 7:7.

Source: The Post Office Directory, 1870.

carrier services which linked them with central and south-west Surrey. The development of the railways brought greatly improved accessibility and the prospect of suburban expansion to a number of urban settlements within twenty miles of London. Their spheres of influence accordingly became a part of the Metropolitan Margins and they ceased to function as the service centres of rural areas. Although the new found accessibility served to speed the carriage of agricultural products from market town to Metropolis, the effects of the railways were more often indirect.¹⁶ Whilst the stage-coaches did not specifically serve the towns of rural Surrey, their inns, smiths, wheelwrights and other traders benefitted from the regular flow of coaches and passengers. Leatherhead and Reigate, for example, lay on heavily used routes and were said to rely on the coach trade.¹⁷ The eclipse of the stage-coach in the face of railway competition was rapid (Figs.5:9; 5:10), and by 1845 services had gone from most of Surrey. For some of the towns of rural Surrey, the consequences of these developments were grave. Leatherhead experienced a 10% decrease in commercial units during the intercensal period 1841-1851 and the population of Windelsham fell by 105, a decrease which the Census Enumerators attributed to "...many families having left Byfleet since the removal of the coaches from the Western road."¹⁸

Accessibility and agricultural land-use.

It has been established that, in c1800, there were considerable variations in accessibility within rural Surrey, which were related to distance and road quality (see supra. pp.59-62). However, James Caird considered that, "...with immediate contiguity to London and with every facility which railway and road can offer, the farmers of the country possess advantages of no common kind."¹⁹ Although Caird is less eloquent concerning the quality of the roads, there appear to have been significant changes in the accessibility of rural Surrey as the methods of road construction advocated by John Macadam were applied during the years 1820-1850.²⁰ Evershed implied that considerable improvements had been effected by the 1850's. In writing of changes since 1809 he reported that the roads of Surrey

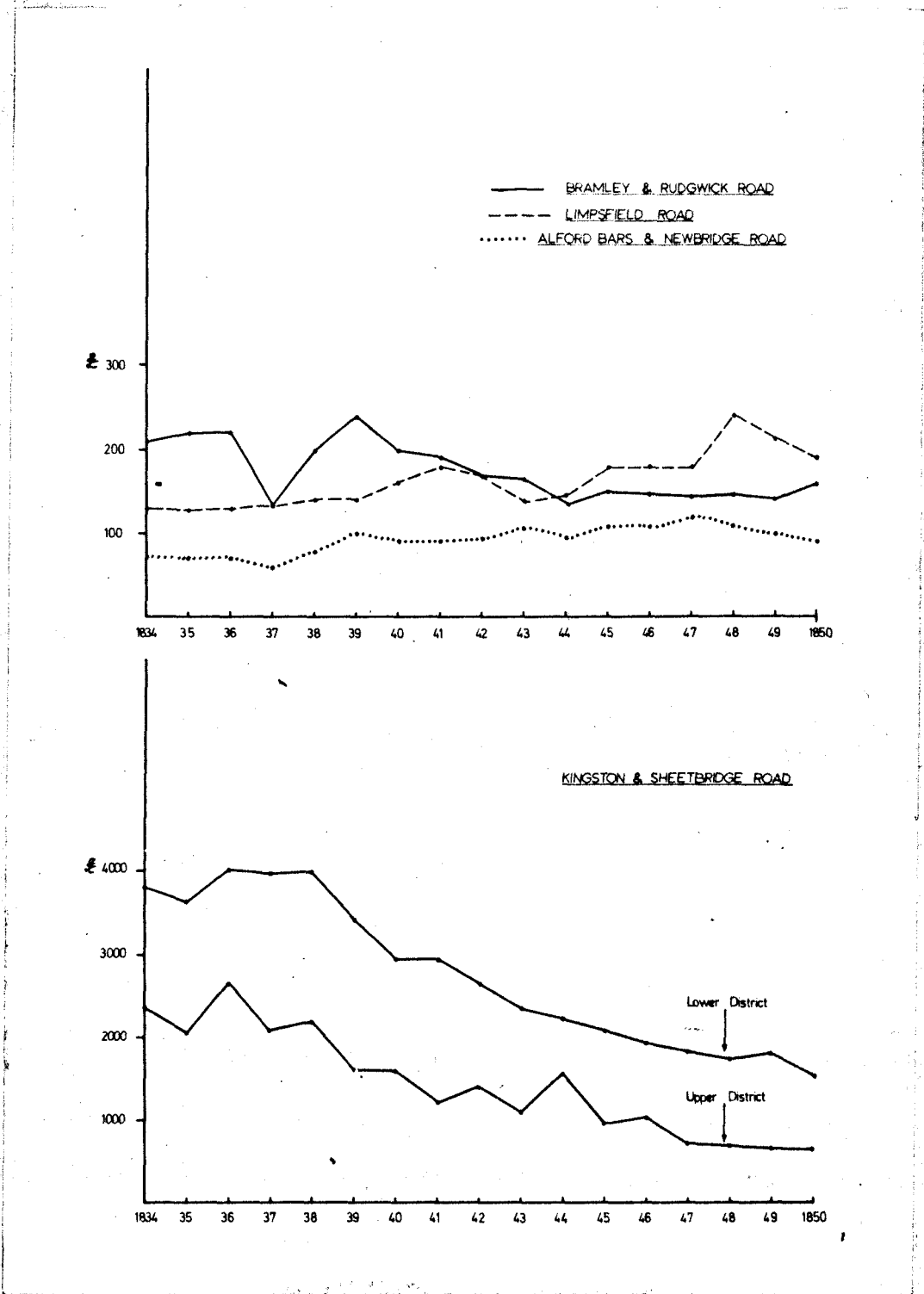


FIG.7:8. Turnpike receipts, 1834-50.

Source: Parliamentary Papers, Vol.49, 1852, County Reports of the Secretary of State - Turnpike Roads, No.2. Surrey.

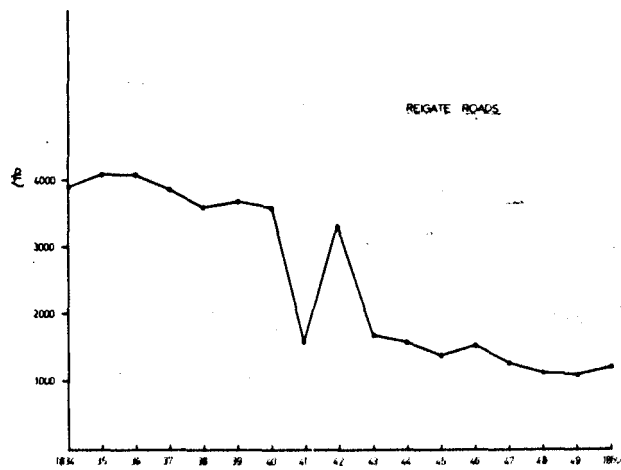
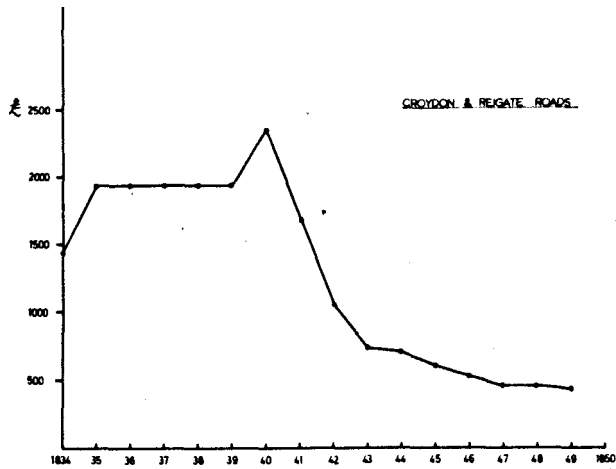
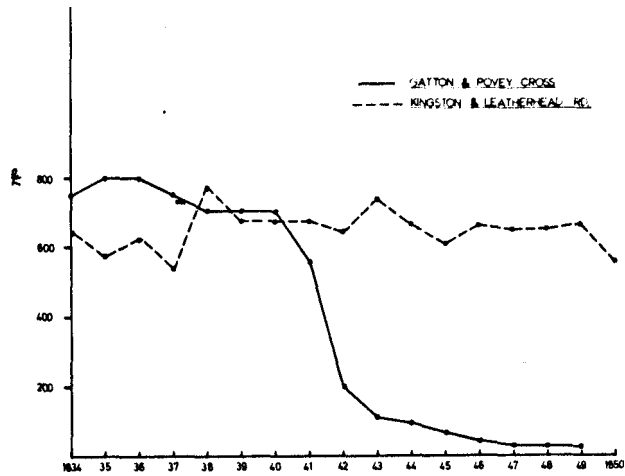


FIG.7:9. Turnpike receipts, 1834-50.

were "hard and sound."²¹ The Weald Clay had been most poorly served by road communications at the beginning of the century, but by 1853, according to Evershed, even here "bad roads are, comparatively speaking unknown," a view which was echoed by William Topley seventeen years later.²² Topley also observed that "...flints and flinty gravels" were being used to repair the Wealden roads; seventy years earlier parish surveyors had relied on more local less effective materials.²³ The road improvements appear to have made little difference to Turnpike receipts (Figs.7:8; 7:10), which remained fairly constant between 1834 and 1850 for those roads unaffected by rail competition. Where a Turnpike was paralleled by a railway however (Fig.7:9), receipts fell rapidly, with serious consequences, as a report of 1852 shows:²⁴

...a large majority of the Turnpike roads have assumed the character of ordinary highways. From the great reduction of income the Trustees have been compelled in numerous instances either to abandon the repair of the roads to the parishes or to discontinue the payment of interest on the debt.

The fortunes of the Croydon and Reigate Trust afford an example of the impact of the transport revolution on the Turnpike roads. The road was paralleled by the London, Brighton and South Coast Railway which was opened in 1841. During the 1820's, thirty-six stage-coaches a day used the road. By 1845, the number had shrunk to two. The dramatic fall in receipts which followed the opening of the railway (Fig.7: 9) led the Trustees to state in 1850 that "... the toll income has decreased so considerably that the repair of the road has ceased."²⁵ Nevertheless, this Trust managed to exist, through yearly renewals of its powers, until 1877, when it was finally discontinued.²⁶ The railways replaced one form of accessibility with another, at the same time permitting the development of agricultural systems which a reliance on road transport had not allowed. Thus, the market and nursery gardens which grew up on the fringes of the western heaths, did not begin to expand until after the opening of the London and Southampton railway in 1838. Similarly the dairy farmers who emerged on the Lower Greensand in the south-west and on the Weald Clay after 1840, relied on the speedy transit of liquid milk by rail. In this instance, improved

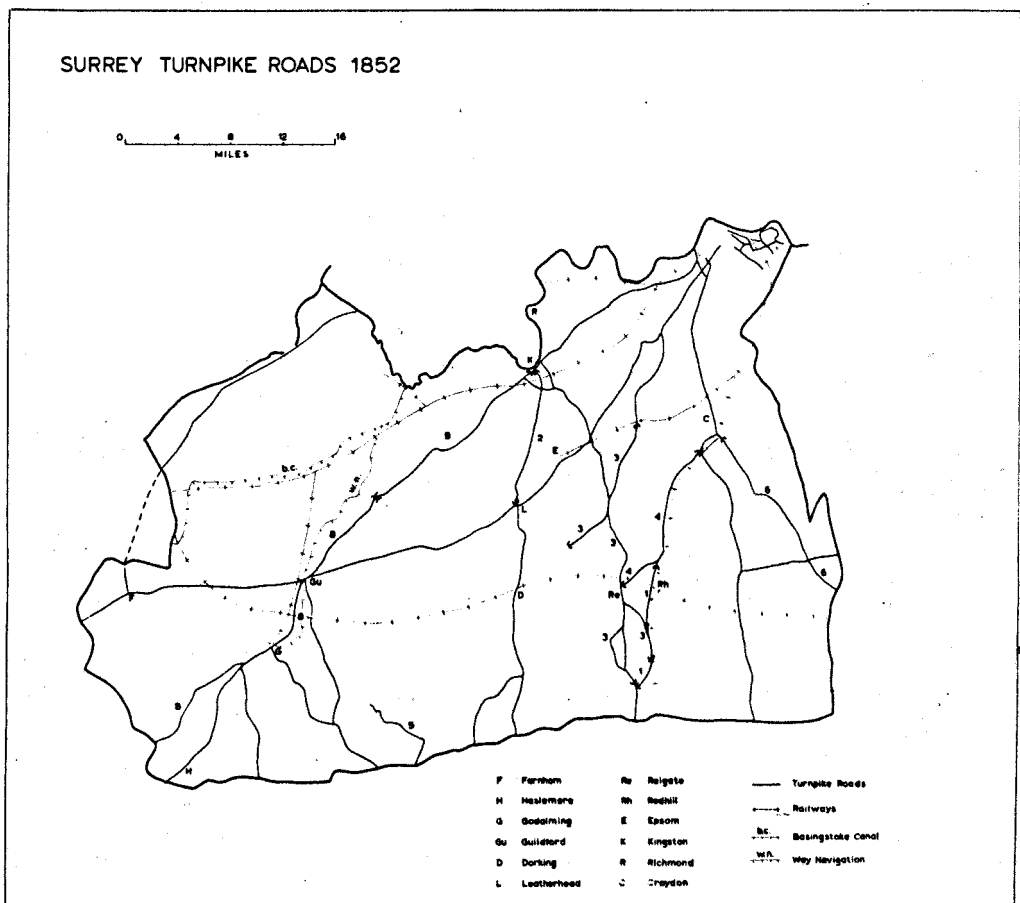


FIG.7:10.

Source: Parliamentary Papers, Vol. 49, 1852, County Reports of the Secretary of State - Turnpike Roads. No.2. Surrey.

communication began a chain reaction of increased intensity, inasmuch as the male calves of the dairy herds became the basis of calf fattening, which, together with milk cows, produced a demand for a greater range of fodder crops locally (Figs.7:12; 6:4). These areas of more intensive agricultural practices approximately followed the line of rail, bisecting the latitudinal patterns of land-use which had developed in response to variations in soil potential.²⁷ Although the railways undeniably increased the accessibility of much of rural Surrey, they did not necessarily constitute an economic alternative to the transport of agricultural produce by rail. Transport rates were such that the costs of transporting grains or hay, products of low value compared with their volume, was not much affected. When the South-Eastern Railway Act of 1836 fixed the price of carrying grain at 2d per ton/mile, the comparable cost by waggon was only 1½d per ton/mile and that with greater flexibility and lower handling costs than the railway could achieve. Thus, while the railways brought guano and other artificial fertilizers to the more remote parts of the county, their principal impact on the agricultural pattern was to encourage the development of intensive agricultural systems near to their routes.

Transport costs and agricultural land-use.

Distance and transport costs formed an important part of von Thunen's analysis. In attempting to apply the formula commonly adopted for economic rent in a von Thunen system to Surrey considerable problems are encountered. Not the least of these is the fact that one of the components of the formula, the cost of production, includes agricultural land rent, which varied not only with the quality of the soil but also with distance from London. In fact, an examination of the changing agricultural pattern would suggest that in Surrey, between 1800 and 1870, distance and transport costs had little effect on farm economies outside the Metropolitan Margins, except for the production of liquid milk and fresh vegetables. An attempt has been made to establish the costs of producing a quarter of wheat or of using an acre of land for wheat production at a number of locations in Surrey during the period 1830-1840. These years have been selected,

TABLE 6A

THE COSTS OF PRODUCING ONE QUARTER AND OF CULTIVATING ONE ACRE OF WHEAT C 1830 - 1840

Parish	Soils	Distance from London (Miles)	Yield per acre (Bushels)	Rent per acre	Labour cost per acre	Transport cost per acre	Cost per quarter	Transport cost as % of total cost per quarter
Kingston	Alluvium London clay	12	32	36/-	19/6	2/3	14/-	4%
Malden	London clay	12	19	19/-	19/6	1/3	14/8	4%
Mickelham	Chalk river terrace	20	31	40/6	19/6	3/9	16/-	6%
Walton on the Hill	Clay with flints	20	16	38/-	19/6	2/6	32/-	3%

Sources: 1. Tithe Assistant Commissioners' Reports. P.R.O. I.R.18.
 2. Schedule A of the Income Tax, Parliamentary Papers, Vol. 32.1844.
 3 and 4. Based on a number of farm accounts contained in:

Goulbourn Estate, Betchworth, bundle of farm accounts, 1834 - 54, Surrey Record Office, Acc.426. Box 16; Frederick Estate, farm accounts, 1802 - 6, 1863 - 71, Surrey Record Office. 292/851, 853, 2538; Clayton Estate, Stewards and Agents Accounts, 1799 - 1832, Surrey Record Office. 60/5/449 - 466.

TABLE 6B

THE COSTS OF PRODUCING ONE QUARTER AND OF CULTIVATING ONE ACRE OF WHEAT C 1830 - 1840

Parish	Soils	Distance from London (Miles)	Yield per acre (Bushels)	Rent per acre	Labour cost per acre	Transport cost per acre	Cost per quarter	Transport cost as % of total cost per quarter
Merstham	Chalk clay with flints	20	24	22/6	19/6	3/1½	15/4	6%
Horne	Weald clay	25	18	17/-	19/6	3/1½	18/-	6½%
Newdigate	Weald clay	28	16	6/-	19/6	3/6	15/4	8%
Merrow	Chalk London clay	30	20	19/-	19/6	3/9	16/8	8%
Dunsfold	Weald	40	12	13/-	19/6	2/9	22/8	8%

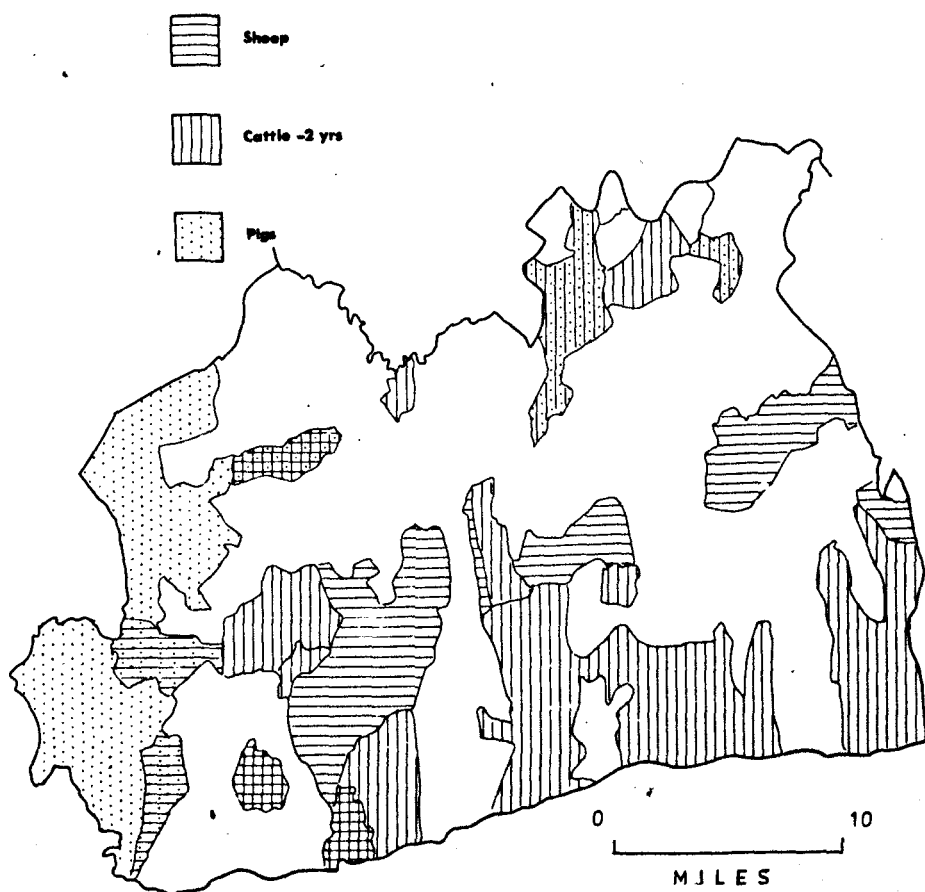


FIG. 7:11. Livestock enterprises, 1866.

Those parishes with the greatest stocking densities (the first octile) are shown.

Source: Agricultural Returns, 1866, P.R.O. M.A.F. 68, 65.

not because they have any special significance, but because data is available. Two principal assumptions are made; firstly that transport costs increased in direct proportion with distance and secondly that labour costs were the same throughout the county. Earlier considerations (see supra. pp.59-63) would suggest that the first assumption would need to be qualified, although the improvements in accessibility which had taken place would tend to reduce the cost differentials which might have resulted from regional variations in road quality. The second assumption is definitely false, for labour costs rose nearer to London and the methods of cultivation varied from place to place. To some extent however, these differences were balanced out, thus, while more labour was needed to cultivate the Weald clay soils, labour costs were lower than elsewhere in the county. Despite its imperfections, the analysis suggests that, while transport costs formed a larger part of total costs at a greater distance from London, it is unlikely that they were ever critical. The distances involved were never great enough to affect the costs of wheat production to any marked extent. However, where the systems of agriculture were more intensive, involving the movement of large volumes of inputs such as manure, or considerable quantities of produce, transport costs might constitute a greater part of total production costs. For cereals the most significant variables would seem to have been yield and land rent. One comparison will make this clear. Although agricultural rents at Kingston were three times those at Dunsfold, the much greater yields obtained at the former meant that the costs of producing a quarter of wheat were considerably less. Since transport costs were only exceptionally critical factors in explaining the land use pattern during the period under consideration, recourse must be made to other influences. It follows, therefore, that beyond the Metropolitan Margins and with the exception of certain more intensive systems, the changes in transport and communications during these seventy years made little impact upon the agricultural pattern. The Weald clay included some of the most remote parts of the county, but low productivity was an even greater barrier to increased profitability.

¹Great Britain, Parliament, Parliamentary Papers, Census of Population, 1861.

²The amount of employment generated by enclosure was the subject of contemporary debate. Evidence presented to the "Select Committee on Commons Enclosure" suggests an increased demand for agricultural labour following enclosure, while others thought that the loss of squatters' holdings would result in additions to the ranks of the landless poor depending on Parish relief.

Great Britain, Parliament, Parliamentary Papers, 1844, Vol.V, Report of the Select Committee to enquire into the enclosure and improvement of commons and land held in common.Q.678.

Great Britain, Parliament, Parliamentary Papers, 1867, Vol.XVII. Report of the Select Committee on the employment of children, young persons and women in agriculture.

Great Britain, Parliament, Parliamentary Papers, 1869, Vol.XIII. Second Report of the Select Committee on the employment of children, young persons and women in agriculture

³Great Britain, Parliament, Parliamentary Papers, Census of Population, 1831.

⁴Ibid.

⁵Great Britain, Parliament, Parliamentary Papers, Census of Population, 1851.

⁶Great Britain, Public Record Office, Census of Population, 1861, Enumerators' Books, R.G.9. 363.

⁷Great Britain, Parliament, Parliamentary Papers, Census of Population, 1841.

Great Britain, Parliament, Parliamentary Papers, 1867, Vol.XVII. Report of the Select Committee on the employment of children, young persons and women in agriculture.

⁸James and Malcolm, General View, p.55.

⁹Great Britain, Parliament, Parliamentary Papers, 1867, Vol.XVII. Report of the Select Committee on the employment of children, young persons and women in agriculture.

¹⁰Ibid.

¹¹ Surrey Record Office, Howard Estate Records, 203/28/1-34.

¹² The index of dissimilarity allows an objective consideration of the differences between settlements and between streets within towns. Caution is needed however, especially when very small absolute numbers are converted to percentages for the purpose of calculating the indices. This applies particularly to the results for the smallest towns and for the streets containing small numbers of activities. The formula used is:

$$I_D = \frac{1}{2} \sum [x_i - y_i]$$

where x_i and y_i are the percentages of the total number of commercial activities in specified functions in two streets or towns. Each town or street is compared with every other town or street.

R.J.Chorley and P.Haggett, eds., Frontiers in Geographical Teaching, Quantitative Techniques in Urban Social Geography, by D.Timms (London:1965), p.240-243.

¹³ Pigot and Co., The Royal, National and Commercial Directory and Topography (London:1839).

¹⁴ The total number of houses "built, building and uninhabited" in Croydon rose from 2897 in 1841 to 11,446 in 1871; at the same time its population soared from 16,712 to 55,652.

Great Britain, Parliament, Parliamentary Papers, Census of Population, 1841; 1871.

¹⁵ G.Sturt, The Wheelwright's Shop (3rd ed., London:1943), p.17.

¹⁶ J.H.Knight, Reminiscences of a Country Town (Farnham:1909), p.5.

¹⁷ H.Evershed, "On the farming of Surrey," Journal of the Royal Agricultural Society of England, IV, (1853).

¹⁸ Pigot and Co., Directory and Topography (1839).

¹⁹ Great Britain, Parliament, Parliamentary Papers, Census of Population, 1851.

W.Brayley, A History of Surrey (London:1841), Vol.1, p.464.

²⁰ J.Caird, English Agriculture in 1850-1851 (London:1852), p.117.

²¹ Fuller, " Trans-Weald roads 1700-1900.

²² Evershed, "On the farming of Surrey,"

²³ Ibid, p.413.

²⁴ W.Topley, "On the agricultural geology of the Weald," Journal of the Royal Agricultural Society of England, 2nd Series, VIII, (1872), pp.262,266.

²⁵ Great Britain, Parliament, Parliamentary Papers, 1852, Vol.XLIX, County Reports of the Secretary of State - Turnpike Roads, No.2, Surrey.

²⁶ Great Britain, Parliament, Parliamentary Papers, 1850, Vol.V Report of the Secretary of State on the Turnpike Roads with a view of diminishing the cost of renewing Turnpike Acts.

²⁷ Surrey County Chronicle, February 13, 1877.

²⁸ This pattern is similar to Black's model of dairy systems which incorporates a ring system with milk nearest the city followed by cream and butter zones, Black goes on to suggest modifications which might be expected as a consequence of the development of rail routes to the central settlement.

J.D.Black, Introduction to Economics for Agriculture (New York:1953).

CHAPTER VIII
AGRICULTURAL CHANGE

Changing land values.

Land values afford a measure of contemporary estimates of land value, a qualitative assessment expressed in quantitative terms. Estate rentals provide detailed local information but the pattern for the county as a whole is not easy to establish, however, the returns to Schedule A of the Income Tax and the Property Tax provide information that is not available elsewhere.¹

In the Metropolitan Margins, changing land values were associated with population increase and the expansion of the built-up area. It has been established that beyond this zone, rapid population increase and the growth of urban settlements were rare (see supra pp.134-145). Thus other explanations must be sought for changes in land values. If land rents at 1860 are plotted against distance from London (Fig.6:2) this view is confirmed, for it is apparent that the influence of the Metropolis was much diminished beyond ten to fifteen miles. The curve is exponential, signifying that initially rents decreased uniformly with distance from the capital but beyond fifteen miles the distance variable was much less important. An examination of the geographical pattern of rent changes suggests that developments in agriculture and variations in season and price were of greater significance in rural Surrey.

A comparison of the Property Tax Returns of 1806 with those for 1815 (Fig.8:1) shows that the claylands recorded the greatest increases in land value. The Napoleonic Wars saw a dramatic rise in the price of agricultural produce and especially of cereals: a circumstance which benefitted the clayland farmers with their emphasis on grain.² On the light lands however, changes in land values were less. Local records of rent changes during the war years are few. Understandably, most written comment and evidence survives from periods of distress, rather than from times of prosperity. However,

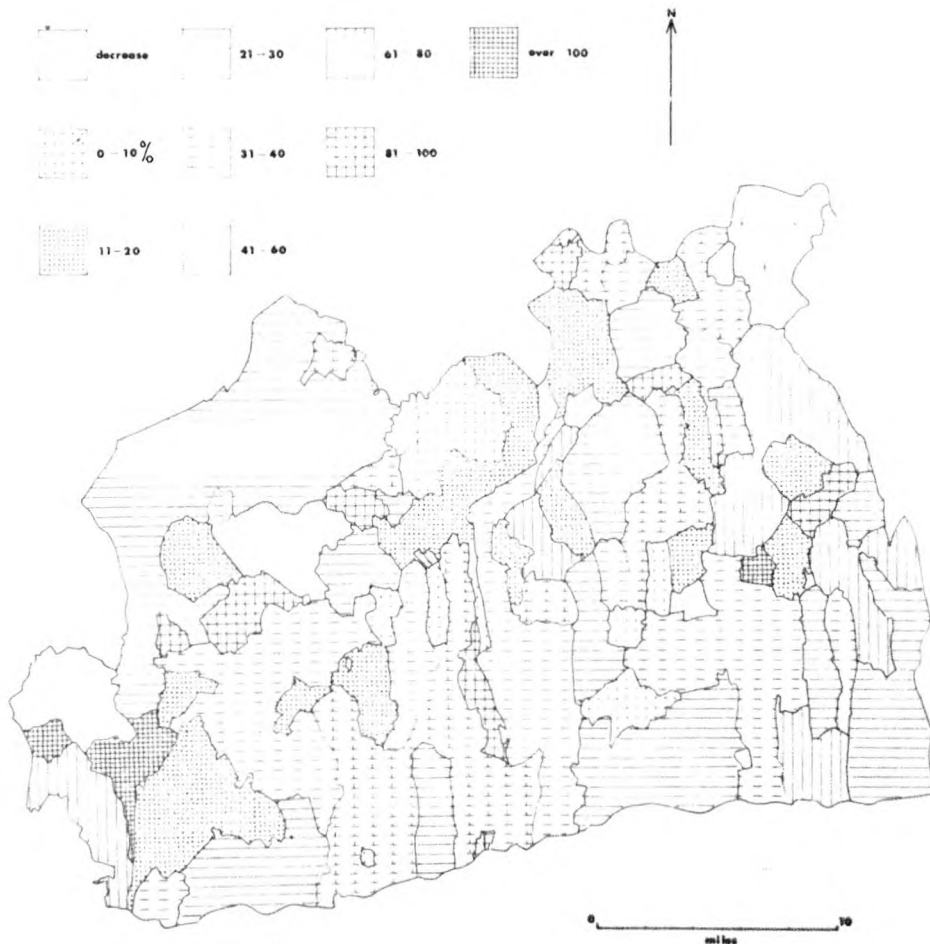


FIG. 8:1. Changes in land value, 1806-1815.

Source: Property Tax. 1806, 1815. P.R.O. E/182/1002 - 23.

Note. The boundaries shown on this map and on fig. 8:2 are those of the Civil parishes.

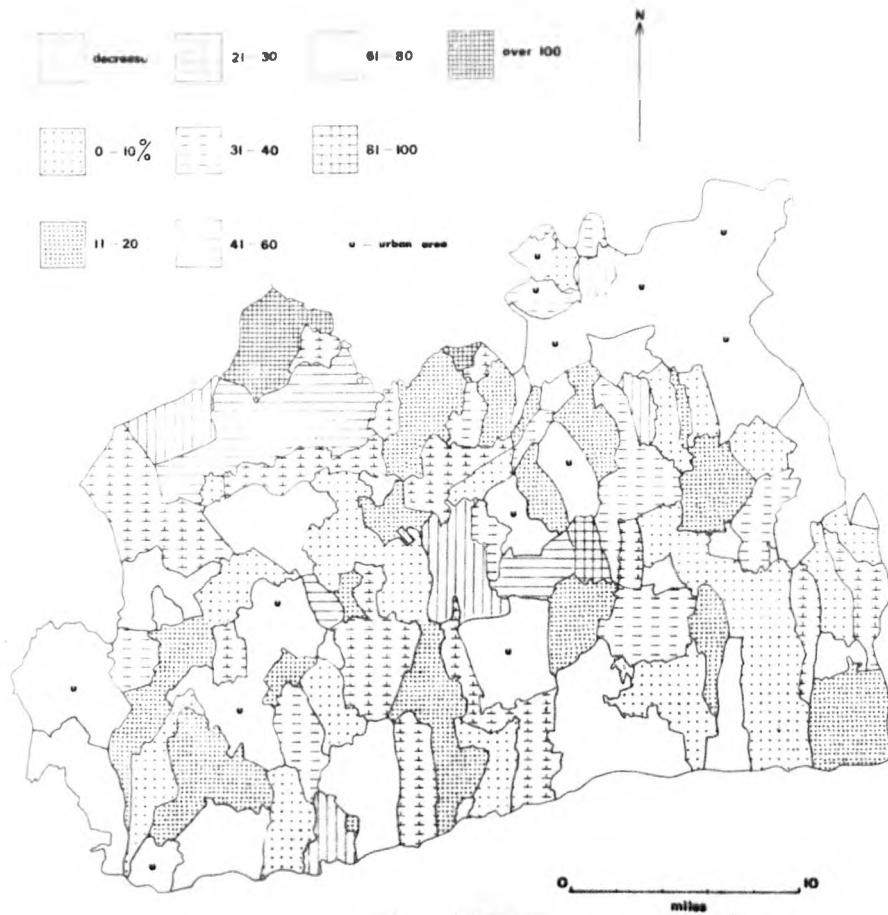


FIG.8:2. Changes in land value, 1815 - 1844.

Sources: Property Tax, Schedule A, 1815. Parliamentary Papers, Vol. 19, 1818; Schedule A of the Income Tax, Parliamentary Papers, Vol.32. 1844.

when the leases fell in on three farms on the Clayton Estate in 1804 and 1805, the opportunity to raise rents was seized. It is significant that the rents of the two light land farms were increased by 10% and 40%, whilst the rent of the predominantly Weald clay farms went up by 90%.³ Similarly, rentals for an estate in the west of the county, on the light lands at Witley, for the period 1799-1809, show that out of fourteen farms, only three had their rents increased, in 1806 and 1807, by 10-15%.⁴ Thus, the variations in rent changes accords with the seasonal pattern of price fluctuation and the regional pattern of agriculture.

Succeeding years saw a shift in the balance of advantage. The diverse systems of the light soils enabled farmers to ride out the periods of post-war depression, whereas the weaknesses of the clayland farmers' reliance on cereals was exposed. Figure 8:2 shows the change in assessments to Schedule A of the Income Tax, 1815-1844. The Weald clay and Lower Greensand districts constituted a region of low rates of increase. This parallels the gradual process of agricultural change in these areas. For the light lands changes in agricultural productivity, consequent upon the adoption of the Norfolk four-course system, had already occurred. This was a period of modification rather than radical change. On the Weald clay, the improvements associated with a greater range of crops and increased livestock numbers were yet to come. In the northern half of Surrey, two areas stand out with uniformly high rates of increase. On the Bagshot Sands, with their girdle of alluvium, enclosure had added to the area of farmed land (Fig 8:3). At the same time, improvements in communications had led to the beginnings of intensive agriculture in this district. The second zone of above-average increases was the stretch of light land on the North Downs dip-slope, between Effingham and Headley, where considerable acreages of subdivided arable had been enclosed (Fig.8:3). Although meaningful correlations between changes in land value and the pattern of agricultural advance are possible for the period 1815 to 1844, the arbitrary selection of any two years must necessarily mask year to year variations.

Note. The locations to which the Enclosure Awards refer are numbered 1 - 79, the numbers appearing below the dates of the Awards or Acts on the map.

- | | | |
|---------------------------------|-----------------------|------------------------|
| 1 - St. George's Fields. | 31 - Epsom. | 54 - Esher and Cobham. |
| 2 - Clapham. | 32 - Ham. | 55 - Broad Green. |
| 3 - Cobham. | 33 - Newington. | 56 - Penge. |
| 4 - Richmond. | 34 - Cobham. | 57 - Charlwood. |
| 5 - Croydon. | 35 - East Horsley and | 58 - Battersea. |
| 6 - Chertsey, Walton on Thames. | Ockham. | 59 - Horley. |
| 7 - Byfleet. | 36 - Frimley. | 60 - Burstow. |
| 8 - Ewell. | 37 - Effingham. | 61 - Shelwood. |
| 9 - Fetcham. | 38 - Send and Ripley. | 62 - Frensham. |
| 10 - West Horsley. | 39 - Guildford and | 63 - Tilford. |
| 11 - Sutton in Woking. | Compton. | 64 - Caterham. |
| 12 - Pyrford and Chertsey. | 40 - Godalming and | 65 - Frensham, Chart |
| 13 - Cheam. | Chiddingfold. | and Pitfold. |
| 14 - Thorpe. | 41 - Worplesdon and | 66 - Ash. |
| 15 - Chertsey. | Wanborough. | 67 - Pitfold. |
| 16 - Kingston. | 42 - Dulwich. | 68 - Seal. |
| 17 - Sutton. | 43 - Lambeth. | 69 - Farnham. |
| 18 - Windelsham. | 44 - Warlingham. | 70 - Chobham. |
| 19 - Beddington. | 45 - Kingswood. | 71 - Elstead. |
| 20 - Betchworth. | 46 - Lingfield. | 72 - Leatherhead. |
| 21 - Egham. | 47 - Bletchingley and | 73 - Chaldon. |
| 22 - Molesey. | Horne. | 74 - Warlingham. |
| 23 - Tolworth. | 48 - Horley. | 75 - East Clandon. |
| 24 - Great Bookham. | 49 - Effingham. | 76 - Ockham. |
| 25 - Peckham. | 50 - Merton. | 77 - Redhill. |
| 26 - Bisley. | 51 - Chessington. | 78 - Merrow. |
| 27 - Chobham. | 52 - Kew. | 79 - Cobham. |
| 28 - Carshalton and | 53 - Stoke d'Abernon. | |
| Wallington. | | |
| 29 - Barnes. | | |
| 30 - Leatherhead. | | |

The fall in cereal prices, which was associated with the post-war period, began with the good harvest of 1813 and was followed eventually by a lowering of the prices for livestock and livestock products, which nevertheless tended to greater stability.⁵ In his evidence before the Select Committee on Agricultural Distress of 1836, George Smallpiece showed that the price of wool in Surrey varied little between 1812 and 1835. Autumn prices fluctuated between 1/8d per lb. in 1813 and a minimum of 10d in 1827, although, in most years, they did not fall below 1/2d.⁶ The regional reaction to low prices in Surrey was similar to that in other parts of lowland England. The clays suffered most and felt the first effects of depression. An analysis of the rentals for the Clayton Estate, between 1800 and 1832 (Appendix 11), shows that, while nearly all of the farms were subject to rent reductions and the majority experienced some arrears of rent, holdings with the greatest clay components were worst hit. The Barrow Green Estate included a number of clayland farms whose reaction to the low prices for cereals was summed up thus:⁷

Above I send you an account of the money I received today and very sincerely regret the sum is so small, you will perceive Young (Stockhurst) paid nothing...of course they all complained bitterly of the times and of the impossibility of continuing to occupy their farms at the present rents...

The differential effect of the depression does not seem to have been immediately appreciated. Three Barrow Green farms, with a mixture of light and heavy soils, had rent reductions of 20-30% in 1816, whilst one which lay wholly on Gault clay, experienced an increase of 5%.⁸ A second valuation was ordered two months later, as a result of which the clay farm had its rent reduced by 13%, "...I have reconsidered my valuation and as the times now appear quite different we have made our alterations accordingly which were not expected a short time ago..."⁹ Three years later, a further reduction of 17% was made for this farm. Clearly landlord reaction to economic change was not necessarily immediate.¹⁰ The claylands with their dependence on cereals were most vulnerable during the first depression. After 1820, the light lands were affected to a greater extent than hitherto,

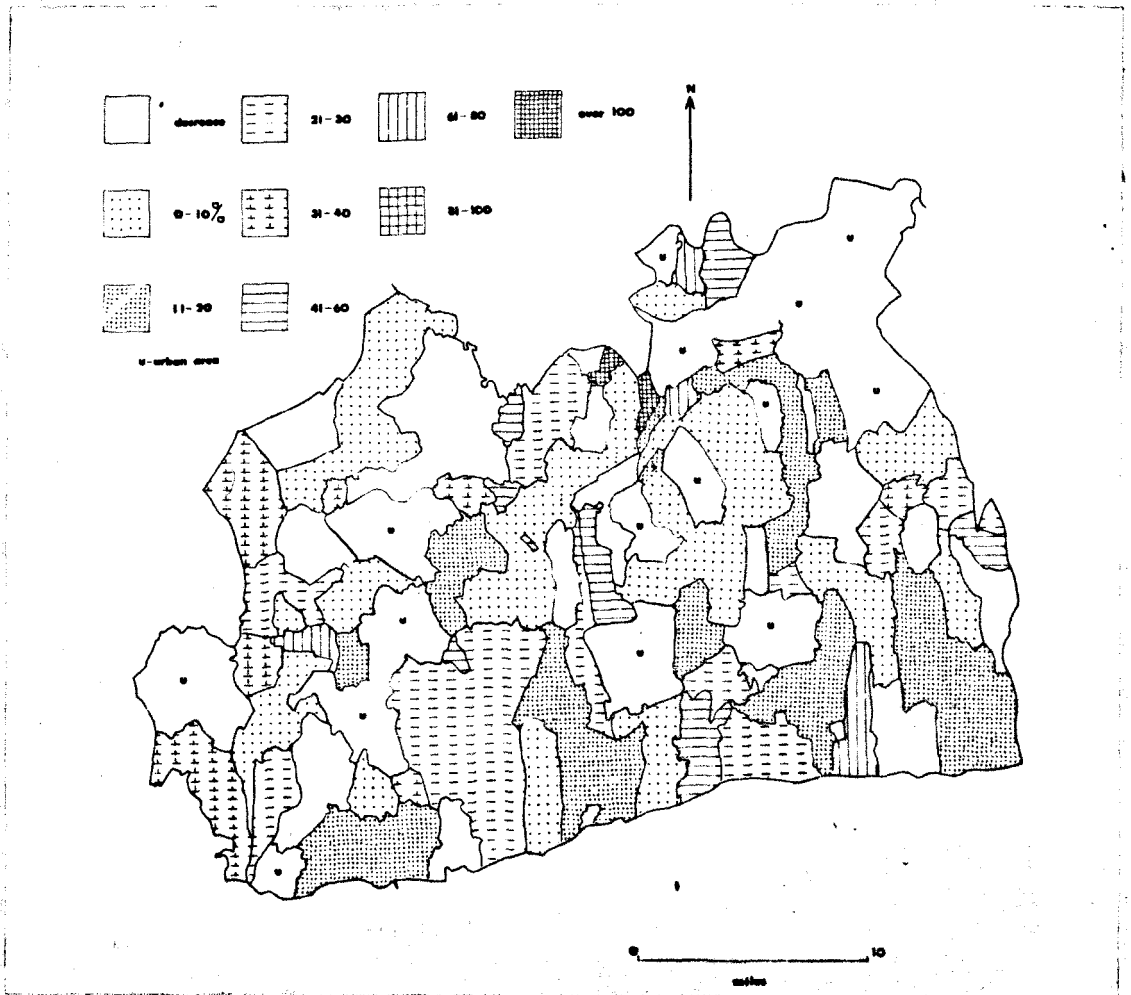


FIG. 8:4. Changes in land value, 1844-60.

Sources: Schedule A of the Income Tax, Parliamentary Papers, Vol.32.1844;
Parliamentary Papers, Vol.39. 1860.

as prices for livestock also fell. The light land farms on the Clayton Estate joined those on the clays in accumulated arrears of rent.¹¹ On the Thameside alluvium at Egham, piecemeal reductions and abatements were made after 1815, but a general reduction of 25% was made in 1822 on the Wyatt Edgell Estate.¹² Similarly, the Losely Estate, concentrated on the Lower Greensand, between Guildford and Godalming, made reductions of rent of 15% in 1823.¹³ Between 1825 and 1830, arrears were reduced and rents occasionally increased, but the recovery was terminated by the wet seasons of the early 1830's. This depression produced similar effects to its predecessor. The sheep-rot of 1830-31 and the fall in cereal prices after 1832 affected the claylands most. In addition, a series of wet seasons made cultivation difficult on the clays, indeed, in some places, ploughing was considered impossible.¹⁴ Tenants could not be found for the undrained clays of Surrey and some went out of cultivation, or was let at half its war-time rent. The estimated rent value of the Weald clay parish of Charlwood fell from £13,354 in 1807 to £3,964 in 1837.¹⁶ A series of dry seasons (1833-1835) were held to have been responsible for the elimination of the sheep-rot; they also benefitted the cereal components of clayland farming and were said to have been the chief cause of their recovery.¹⁷ The same dry period had an adverse effect on the lighter lands. "I am afraid the long continued drought has been injurious to some of the dry soils of the farm, the crops are promising well on the strong lands in the neighbourhood, but quite the reverse upon the light, the hay crop is particularly short."¹⁸ Thus, it can be concluded that proximity to London made little difference to the pattern of response to the post-war depressions in rural Surrey, which was similar to that recorded for other and more distant places.¹⁹

The pattern of rent changes conformed, in a general sense, to the regional variations in agricultural change between 1815 and 1844, a view which is also valid for the period 1844 to 1860 (Fig.8:4). The overriding feature of this map is the absence of dramatic changes. The greatest increases appear on the claylands, especially the Weald clay, where rises of 41-60% occurred. This pattern would appear to

accord well with the improvements in Wealden farming at this time. (see infra pp.191-195). The Bagshot Sands, which had exhibited considerable increases in rent between 1815 and 1844, stand out as a district with very small increases, and occasionally decreases even, the peak of enclosure and dramatic improvement had clearly passed. This zone had now joined the other light soil districts, areas of sound agricultural practice, based on mixed farming, but rarely of spectacular change. Indeed, by 1860, many of the contrasts in land values in evidence at the beginning of the century had become blurred, much as they had elsewhere. However, long-term changes do not provide the whole story. Thus, while increases in rent on the Christ's Hospital clayland farms accord with the upward trend as a whole in land values identified for the Weald at this time, the Lee Steere Estate exhibits no dramatic rise (Appendix II). The rents of some Lee Steere Weald clay holdings were raised by less than 10% in either 1857 or 1860. The shortlived depression of the 1850's did not produce a reaction in arrears, abatements and rent reductions, comparable with the effects of the earlier periods of distress. Some arrears were recorded on the Lee Steere Estate, between 1850 and 1856 (Appendix II), but these do not appear to have been part of a general pattern.

The analysis of changes in land-value thus supports the view that the influence of town upon country was of small account beyond the Metropolitan Margins, despite London's rapid growth during these years. In rural Surrey, variations in season and price and in the geographical pattern of agricultural change, were the principal factors behind increases and decreases in land value during this period.

Agricultural land-use.

Since in the Metropolitan Margins, intensive farming practices were the means of making the most of this location, it might be suggested that increased distance from the market should have been accompanied by less intensive agricultural practices and the development of rings of production, similar to those of von Thunen. Furthermore, the growth of London and the development of

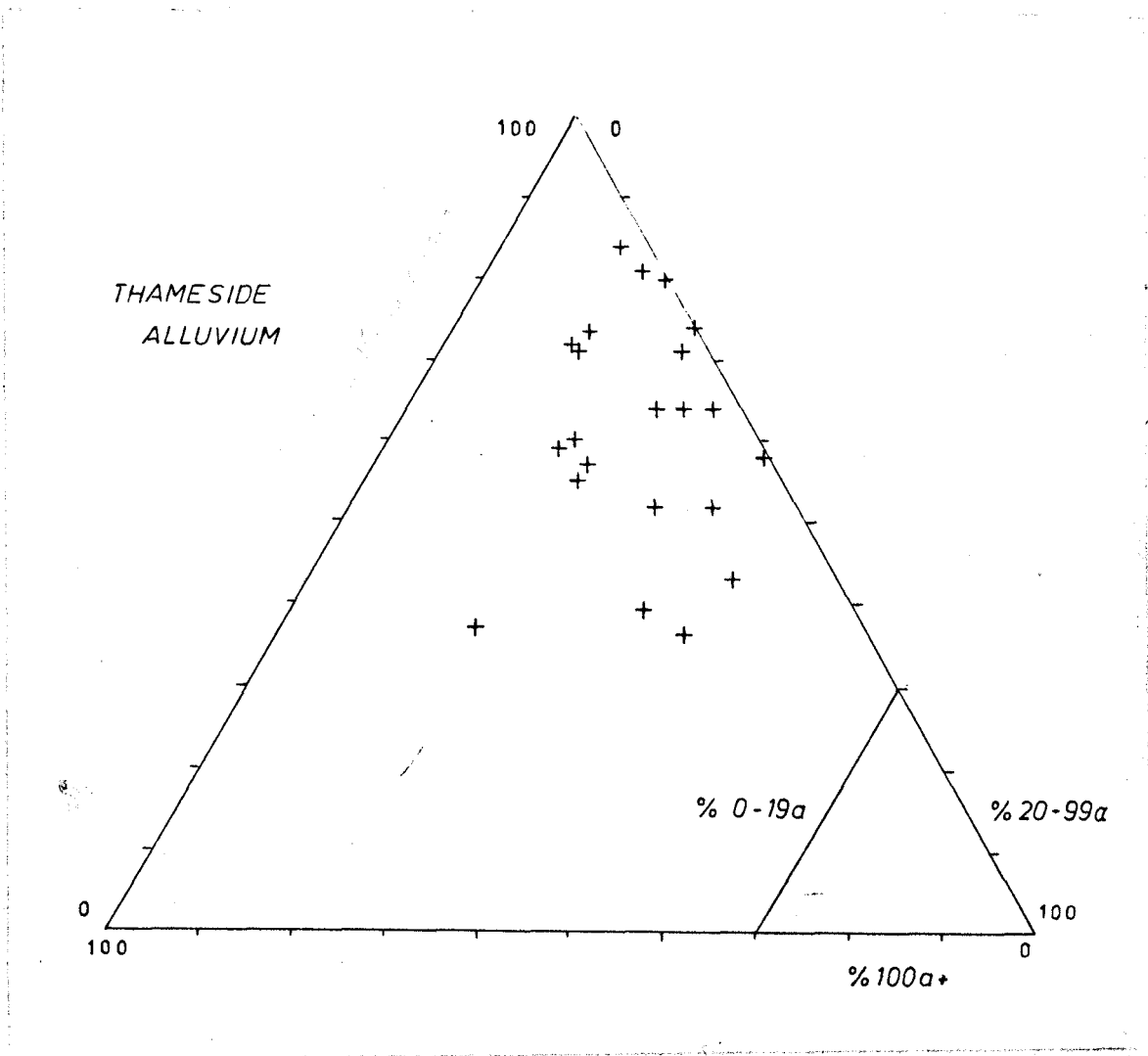


FIG.8:5a. Farm size and soils, 1870.

Source: Agricultural Returns, 1870. P.R.O. M.A.F. 68. 261.

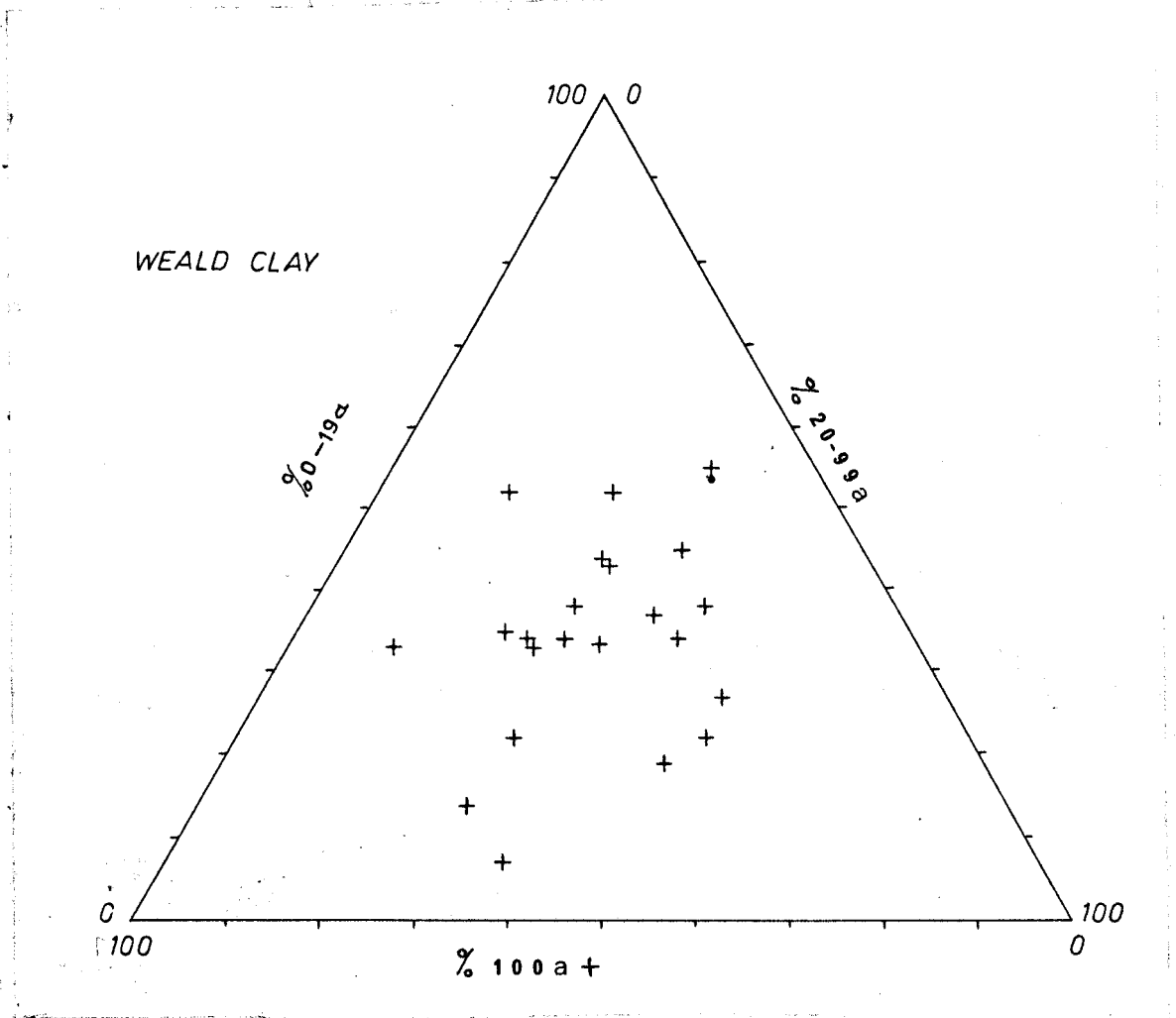


FIG. 8:5b. Farm size and soils, 1870.

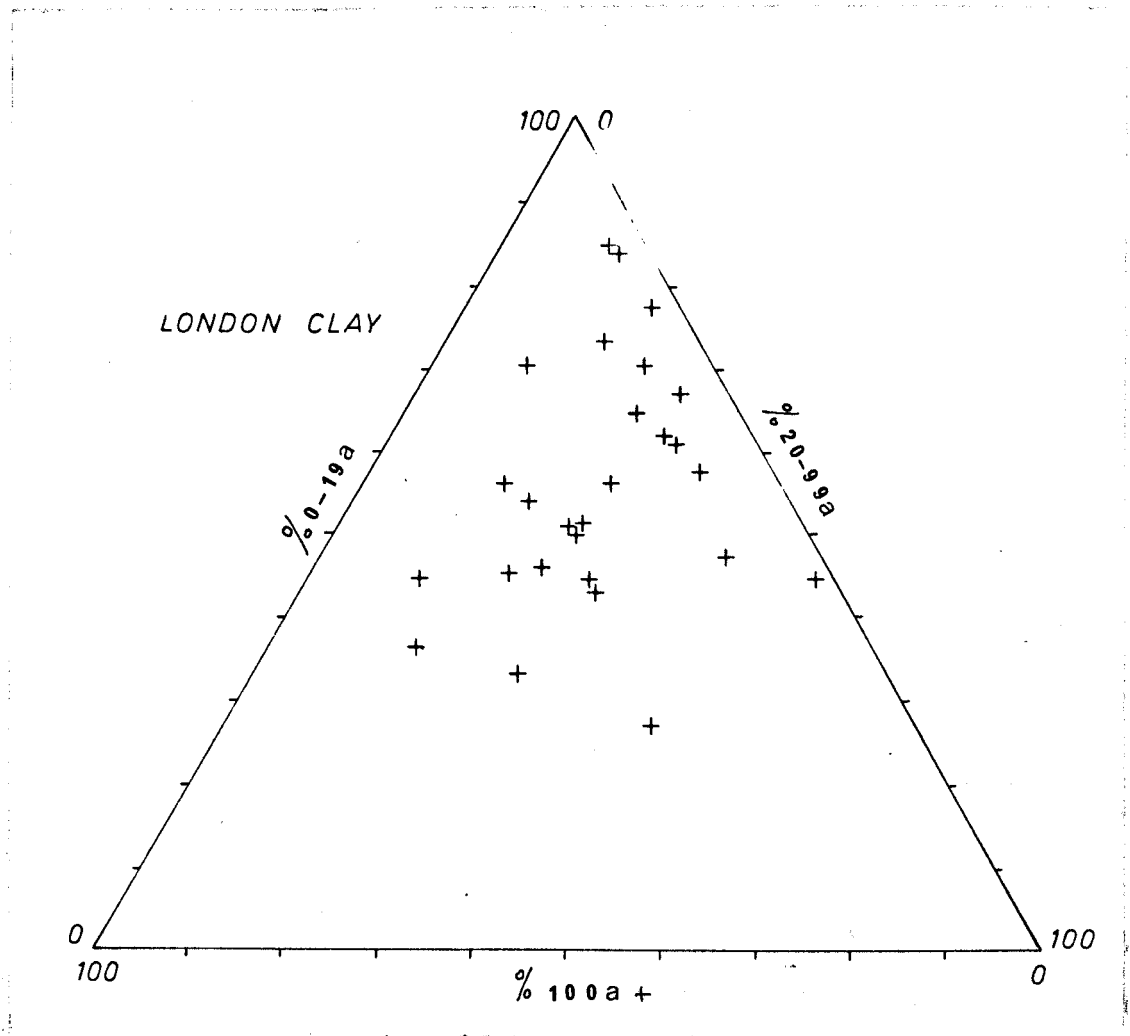


FIG.8:5c. Farm size and soils, 1870.

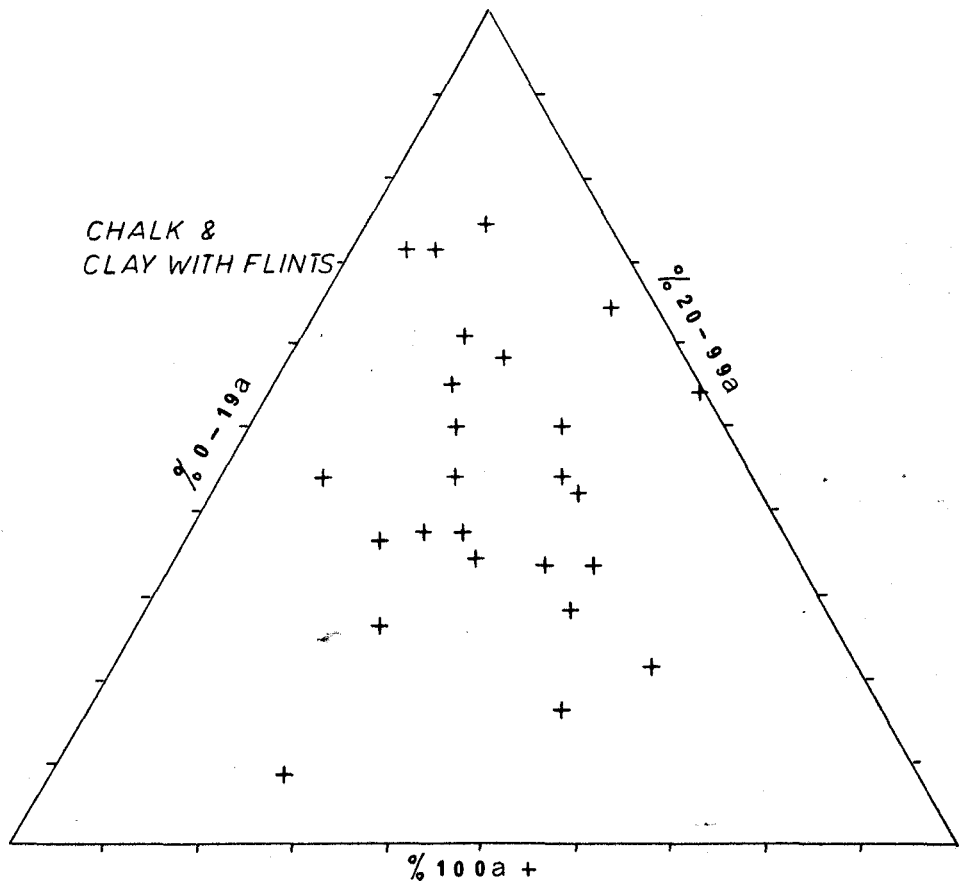


FIG.8:5d. Farm size and soils, 1870.

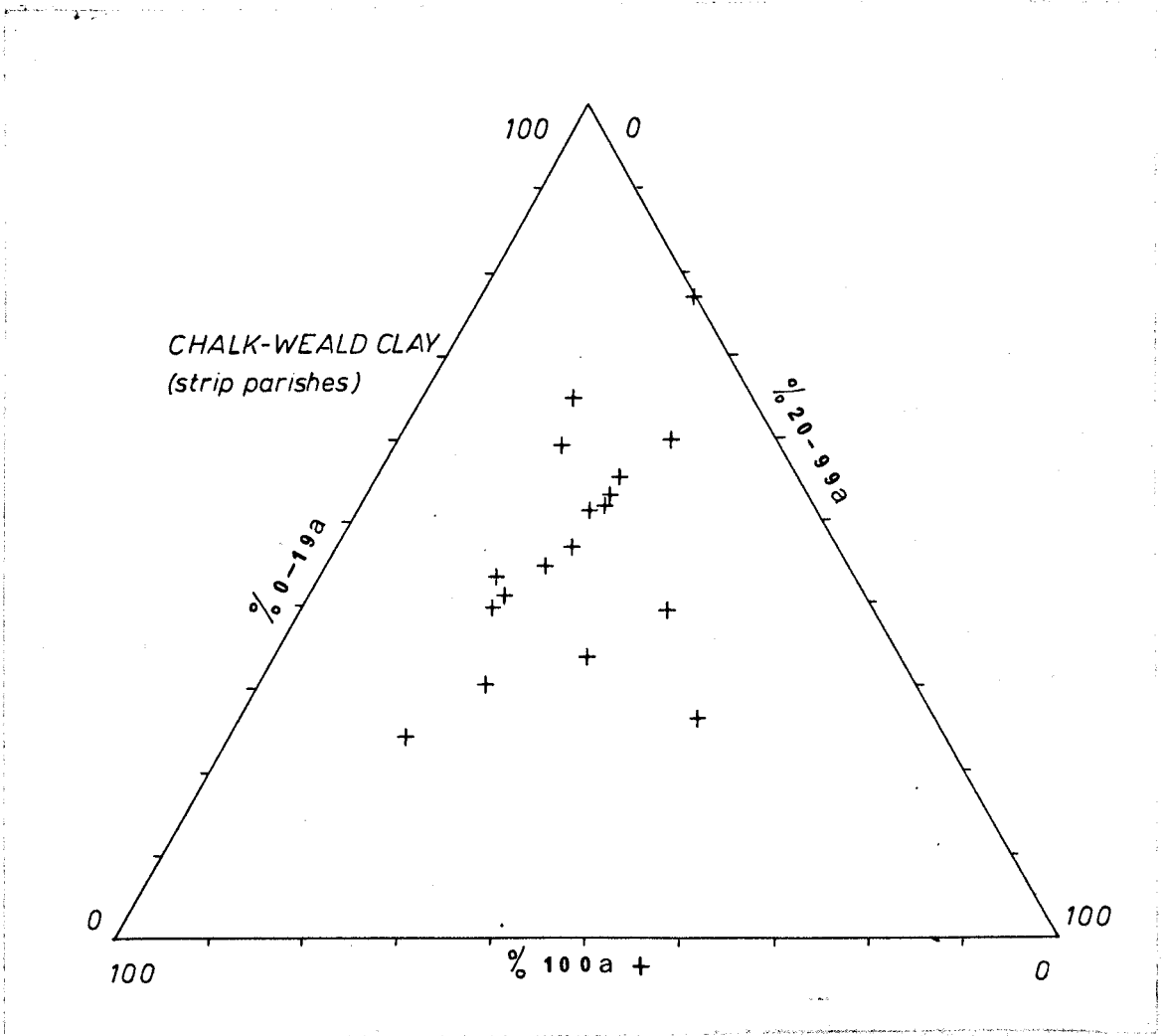


FIG.8:5e. Farm size and soils, 1870.

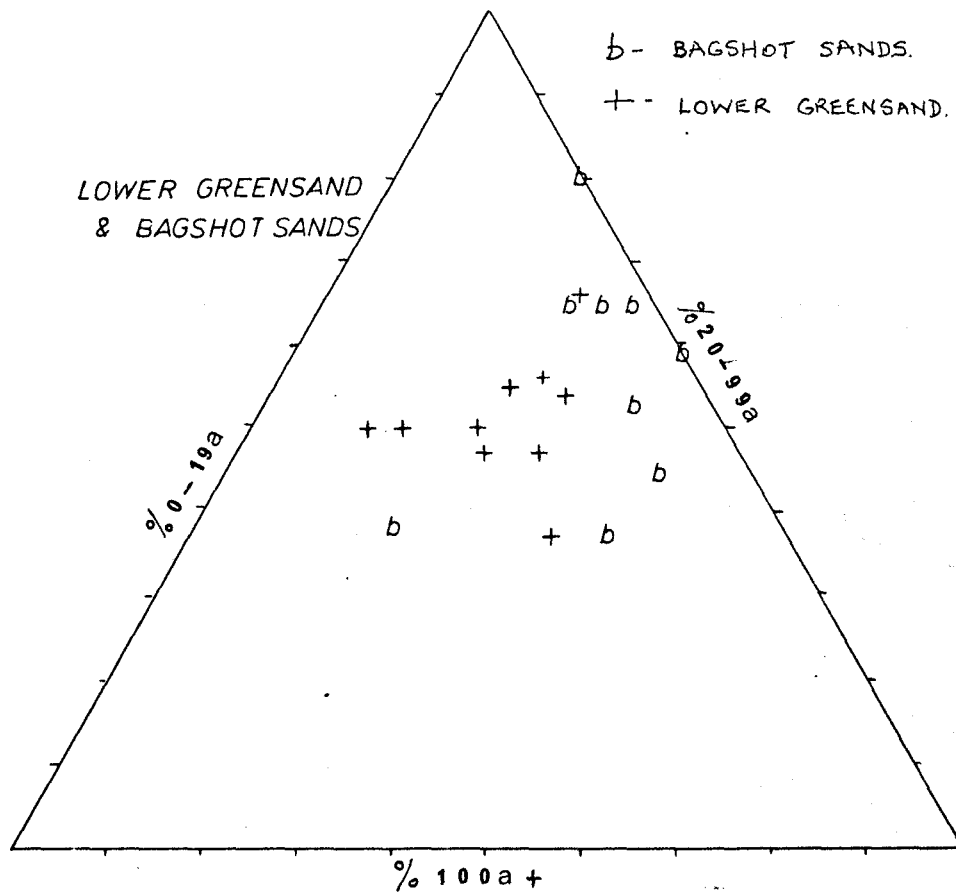


FIG.8:5f. Farm size and soils, 1870.

rail communications might be seen as the catalysts of an outward movement of these districts in the form of migrational waves. Implicit in such an argument is the existence of a series of straight line relationships between distance and economic rent, for a variety of crops and for the different systems of crops. However, it has already been suggested that the contrasts between rural Surrey and the Metropolitan Margins would not have produced such gradations, but rather that at a distance of from ten to fifteen miles from London a more distinct break would have been apparent. The analysis of agricultural intensity, expressed in terms of distance from London (Fig.6:8), makes this plain and suggests furthermore that factors other than distance and transport costs must be taken into account. The crop combinations for 1870 point to a division of rural Surrey, on the basis of soil potential rather than distance from the Metropolis (Fig.6:4). It cannot be gainsaid, that certain specialist systems of production, such as liquid milk, were situated in locations, where the railways provided speedy transit to London. Nevertheless, the most coherent regions of rural Surrey at this date were the districts of light soils and heavy clay. Beyond the Metropolitan Margins, the direct influence of London rapidly diminished and the explanation of cropping and livestock changes must be sought in the desire of farmers and landlords to raise their levels of profit and to reduce to a minimum annual fluctuations in income. These objectives were achieved through diversification. Such decisions were made within a changing pattern of farms and in a landscape that was subject to varying amounts of physical improvement through enclosure and land drainage. A comparison of farm size on the differing soil types at 1831, 1851 and 1870 was attempted, but abandoned, for the analysis suggested that there were serious deficiencies in the earlier date. The statistics for 1870 however (Figs.8:5a; 8:5f), suggest that the London clay and Thameside alluvium contained the highest proportion of small farms. Elsewhere, most parishes occupied an intermediate position. The most striking feature is the pattern for the Weald clay. Most commentators from 1800 to 1853 considered that this was a district with many small farms and yet in 1870, this area was more in line with the rest of rural Surrey, suggesting that increased farm size had accompanied the other

improvements in Wealden farming after 1840. In an attempt to examine the nature of changes in farm size, the return of "those who occupy land" for 1870 was compared with that for 1873.²¹ The recurring increases in excess of 10% for the London clay and Thames alluvium, compared with the relative stability observed elsewhere, indicates yet again the contrast between the Metropolitan Margins and rural Surrey.

The light lands.

Although their soils varied considerably in agricultural potential, the light lands stand out as districts of agricultural advance, whether this be measured in terms of enclosure, rent, evidence of innovation or of the integration of livestock and crops. No light soils district is more than forty miles from London and yet it is difficult to establish a causal relationship between agricultural improvement and the growth of the Metropolis. The changes which took place were seldom dramatic and might be seen as the slow process of diffusion and adoption of new ideas, and as trends towards the maximization of profits to achieve greater incomes, but not necessarily to offset rises in production costs, since rents and labour costs rose slowly here. Although the recurring theme, diversification, was common to all of the light lands at this time, it found expression in a variety of crop and livestock combinations.

The North Downs. - The sheepfold remained the link pin of the majority of chalkland farms, excepting those in the north-east, where the growing suburb of Croydon, was an inducement to farmers to sell off, rather than feed, their fodder crops. Elsewhere, the principal object was the early lamb produced from Southdown, Dorset, Somerset or Merino crosses, principally for meat. At this distance, it remained more worthwhile, until 1870 at least, to feed off rather than to sell crops. Figure 7:11 points to the importance of sheep in this district.²² Cropping changes were the most important modification to the agricultural pattern and they were chiefly designed to provide a greater

Variety of fodder crops from October to May when they were most required by sheep. Prior to 1840, turnips increased their share of the arable acreage dramatically; even allowing for the unreliability of the 1801 Crop Returns, the evidence is convincing.²³ The value of turnips as winter sheepfeed and as a preparation for cereals was established before 1800, but the slow diffusion of its cultivation, to the turn of the century, had been the subject of comment by the Board of Agriculture Reporters. It is not, therefore, surprising that the first few decades of the nineteenth century witnessed the continued expansion of turnip acreages in this district, where instances of a doubling of its acreages between 1801 and 1840, are quite common. The increase in turnips had been accompanied by a decline in the importance of peas, but after 1840 this crop began to be used in place of sown grasses. Land sometimes became clover sick but the especial hazard, on these waterless soils, was crop loss through drought. Peas and other feed crops could reduce this risk. Evershed saw this change somewhat apprehensively, considering that grass was a better preparation for wheat.²⁴ In a sense, he misread the changing motives of the chalkland farmer, who wishing to expand his range of fodder crops also nevertheless tended to stress livestock rather than wheat production, encouraged by the relative steadiness of meat prices.

Many North Downs parishes contain patches of heavy clay-with-flints soils, on which clayland crops such as oats and tares were grown, giving even greater diversity to the already varied crop combinations of this district (Figs. 6:3; 6:4). The contrasting crop rotations followed on these soils, which were in close proximity, is exemplified by Carshalton at about 1840, when the heavy land rotation was: fallow, tares, wheat and oats, while on the light soils, a system of turnips, barley, seeds (a two year ley) and wheat was prevalent.²⁵ By 1870, the Downs was distinguished by the multiformity of its crop combinations. Every parish differed from its neighbour, in one potatoes, in another barley, in yet another bare fallow was the leading crop. The trend was for greater diversification,

accompanied by increased intensity, measured in inputs of artificial manures, rather than in increased labour inputs. The changing conditions embodied in leases during these years exemplifies the occasional references to the use of artificials. During the 1840's the usual compensation for hay, straw, etc., sold off, was dung, but leases from this area during the 1860's and 1870's generally provided for dung, guano, superphosphate or nitrate of soda. Although this does not prove their application, any more than it establishes that hay and straw were sold off, it does nevertheless suggest that artificials were available and that their existence was known. Similarly, the enclosure of open-field arable, which had survived in this district to 1800 (Fig.8:3) suggests that North Down agriculture was tending to a more efficient use of land. The North Downs provides no instances of dramatic changes; the tendency was for modifications in cropping designed to enhance the profitability of sheep-based enterprises. The chalkland farmer in Surrey had developed a satisfactory, integrated farming system, and London was not yet near enough to induce him to make radical changes.

The Lower Greensand.- This was the most advanced of the light soils districts and yet it included some of the most remote parts of the county and some of its poorest soils. It cannot be argued that the growth of the Metropolitan market was a direct filip to agricultural progress here, except in the general sense that the Metropolis constituted a constantly increasing centre for the consumption of agricultural produce. Land-use decisions in this district were based on a desire to capitalize on soil potential and on investments of labour and capital. At 1800 this district constituted a considerable area where the Norfolk-four course rotation, allied to the sheepfold, held sway. The better soils were well adapted to such a system, the poorer lands benefitted from modifications of it;²⁶

...the greater proportion is kind to turnips and barley, cultivated with little labour and expense and with good management yields good crops of wheat, this is intertwined with patches of the very poorest and wildest land, sometimes a single knoll, sometimes of considerable extent, this land is chiefly in rye

and bad seeds and is pastured with sheep.

In 1800 Lower Greensand districts included considerable areas of common and heathland (see supra p. 25), land of varying agricultural potential. William Keen, a Godalming land agent, considered that if enclosed:²⁷

...some would make very good arable land and some very good meadow land, and there might be some good water-meadow land, and some good pasture, a great portion of it is fit only for plantations.

A number of these commons and heaths were subsequently enclosed and put to the variety of uses Keen had outlined (Fig.8:3). The process of land improvement carried out by the Ware Estate, at Tilford, provides an example. The acreage of the Ware Estate was doubled as a result of an allotment made in the Tilford Enclosure Award. When the land came to be used for arable cultivation, considerable investments were necessary, including deep ploughing, burning the turf and double ploughing. The costs varied between £3.10 and £6 an acre. The newly enclosed land was added to existing farms, whose tenants were encouraged, through their leases, to feed sheep on roots, in order to continue the process of land improvement initiated by the estate. The enthusiastic agent wrote:²⁸

...I repeat the old text, all the sheep you can find, and if you ask what this is I reply as the sailor who first asked for all the tobacco in the world and on being asked, "what more?" only said, 'I ask a little more tobacco,' so say I, a few more sheep if possible.

Soil contrasts were reflected in differences in the yields of the principal crops (Table 7). The poorer soils, near Haslemere, produced two quarters of wheat per acre and three quarters of oats and barley in 1840, while the "deep sandy loams" at Peperharrow, furnished two and a half and five quarters an acre of these crops.²⁹ Changes in North Downs farming were geared to more efficient sheep production. On the Greensand too, livestock gained in importance in farming systems, as new stocking practices were introduced as adjuncts to an all-important sheep husbandry. Changes in cropping

TABLE 7 Variations in crop yields, c. 1840

Parish	Soils	Wheat	Barley	Oats	Clover	Hay	Sainfoin	Beans
Kingston	London Clay & Thames Alluvium	32b	-	56b	35cwt	40cwt	-	-
Walton on Thames	"	28b	38b	-	-	20cwt	-	-
Malden	London Clay	19b	-	32b	20cwt	16cwt	-	-
Mickelham	Chalk & Alluvium	31b	40b	32b	40cwt	30cwt	-	-
Walton on the Hill	Chalk & Clay with flints	16b	-	32b	15cwt	15cwt	-	-
Merstham	"	24b	24b	40b	-	20cwt	15cwt	-
Farleigh	"	20b	-	-	-	-	-	-
Peperharrow	Lower Greensand	20b	40b	40b	20cwt	20cwt	-	-
Merrow	Chalk & London Clay	20b	40b	32b	40cwt	20cwt	-	-
Dunsfold	Weald Clay	12b	-	-	-	-	-	-
Ockley	"	16b	-	24b	-	-	-	24b
Newdigate	"	16b	-	24b	-	-	-	24b
Burstow	"	14/18b	-	18/24b	-	-	-	-
Horne	"	18b	-	25b	16cwt	-	-	-

Source. The Assistant Commissioner's Reports. P.R.O. I.R.18.

were for the most part closely linked to developments in the livestock sector.

By 1840, this district had become the major centre for the rearing of fat calves in Surrey. On the Middleton and Losely estates, sheep remained the most important livestock component but in the mid-1830's, calves from Galloways and Ayrshires, ready for market in July, formed a significant part of the agricultural economy.³⁰ The development of the London and Southampton railway, in 1838, encouraged dairying in the northern limb of the sub-region, and by 1866 this was one of the principal centres for the production of liquid milk in Surrey (Fig.8:6). Further diversity in livestock husbandry was the product of the growth of pig-fattening, which became an important enterprise here (Fig.7:11). An analysis of the farm accounts for part of the Ware estate, typical of this area, clearly demonstrates the overriding importance of livestock in the farm economy between 1850 and 1860 (Fig.8:7), when they rarely accounted for less than 60% of the total income. In this district, few sheep were kept throughout the year, the ewes being bought at markets and fairs in western and south-central England in the autumn. The fattening techniques were not dissimilar to those associated with grass lamb production, which had been followed nearer to London at the beginning of the century. In this sense, the displacement of this activity was a response to the expansion of the Capital. Whilst the stress was increasingly on livestock as meat producers, the value of sheep as agents of soil improvement, was not forgotten. Sussex and Berkshire pigs were also bought in, as were oxen purchased in the border counties, Wales and the south-west.

These changes in the composition of the livestock population called forth modifications to the cropping pattern. Oats decreased in importance as mangolds increased their share of the arable acreage. (Fig. 6:3). Whilst oats were good feed for horses, their low nitrogenous value made them less useful for dairy cattle or for

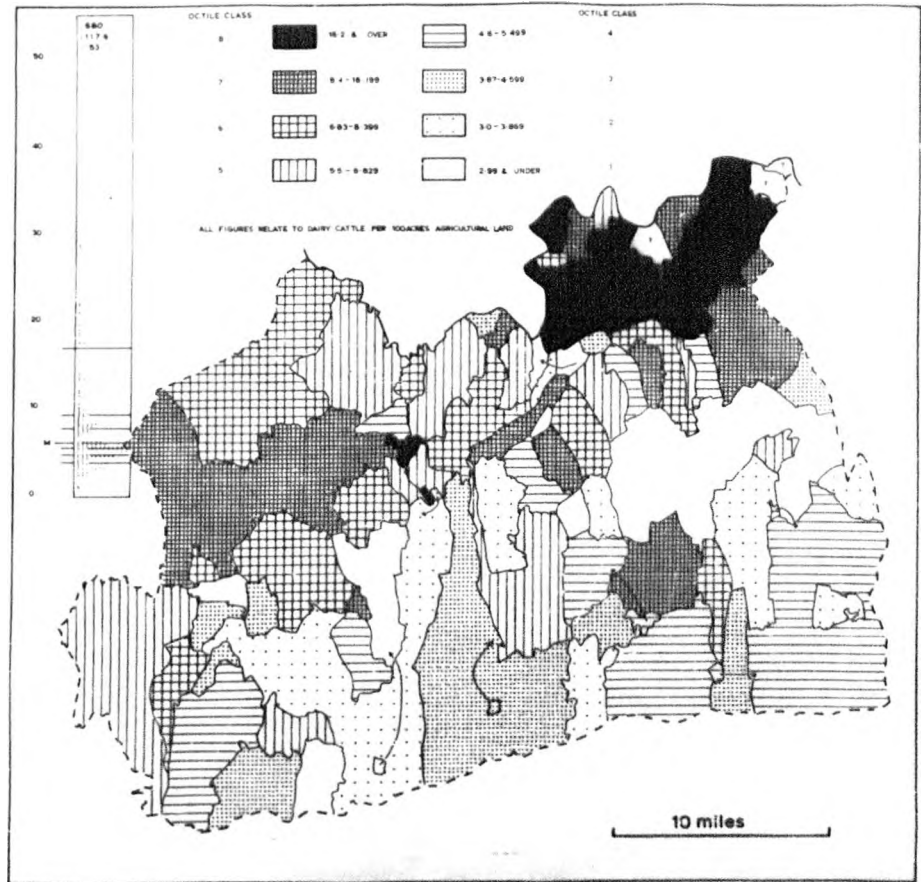


FIG.8:6. Dairy cattle per 100 acres of agricultural land, 1870.

Source: Agricultural Returns, 1870. P.R.O. M.A.F. 68. 261.

fattening stock. The mangolds were of little use as sheep feed, although they gave greater yields per acre than turnips, the principal reason for their increased acreage being the rise in the cattle population of the district. Potatoes and barley acreages also rose; they were especially valuable as fodder for pigs.³¹

By 1870, two crop combinations were dominant in this zone; wheat, hay, turnips/swedes, barley and wheat, together with, wheat, hay, oats, turnips/swedes. Both combinations marked a departure from those found at c1840 (Figs.6:3; 6:4). Thirty years later, combinations had been modified through the addition of other feed crops such as mangolds, peas, potatoes or carrots. The Ware estate at Tilford can be regarded as typical of an advanced estate in this area. A wide range of fodder crops were grown on the home farm. Seeds purchased in 1852 included carrots, turnips, peas, beans, clover, mangolds, rye, wheat and barley. The orientation towards many fodder crops is clear.³² By producing a wide range of feed crops a longer period of fodder availability was ensured, labour requirements were more evenly spread, and there was less chance that the perennial problem of drought would reduce fodder supplies. However, in 1852 the problem of dry season losses was still present, for although it was considered that a successful start had been made in wintering the sheep, the failure of the spring food forced the agent "...to buy in half a ton of oil cake and do all I can to get them up as much as possible by Farnham Fair (May 20th)."³³ The analysis of farm accounts (Fig.8:7) clearly demonstrates the importance of livestock and indicates the limited significance of wheat and other cereals. It was only when stock numbers were low, as in 1857-1858 and 1859-1860, that sales of barley and crops such as potatoes and carrots were in evidence. Here was an example of an integrated farming system, in which the bulk of the produce was converted to meat on the farm, at this distance a more profitable objective than the sale of the crops themselves in the Metropolitan markets. The place of hops in the economy is interesting, for their contributions varied widely from season to season. The agent

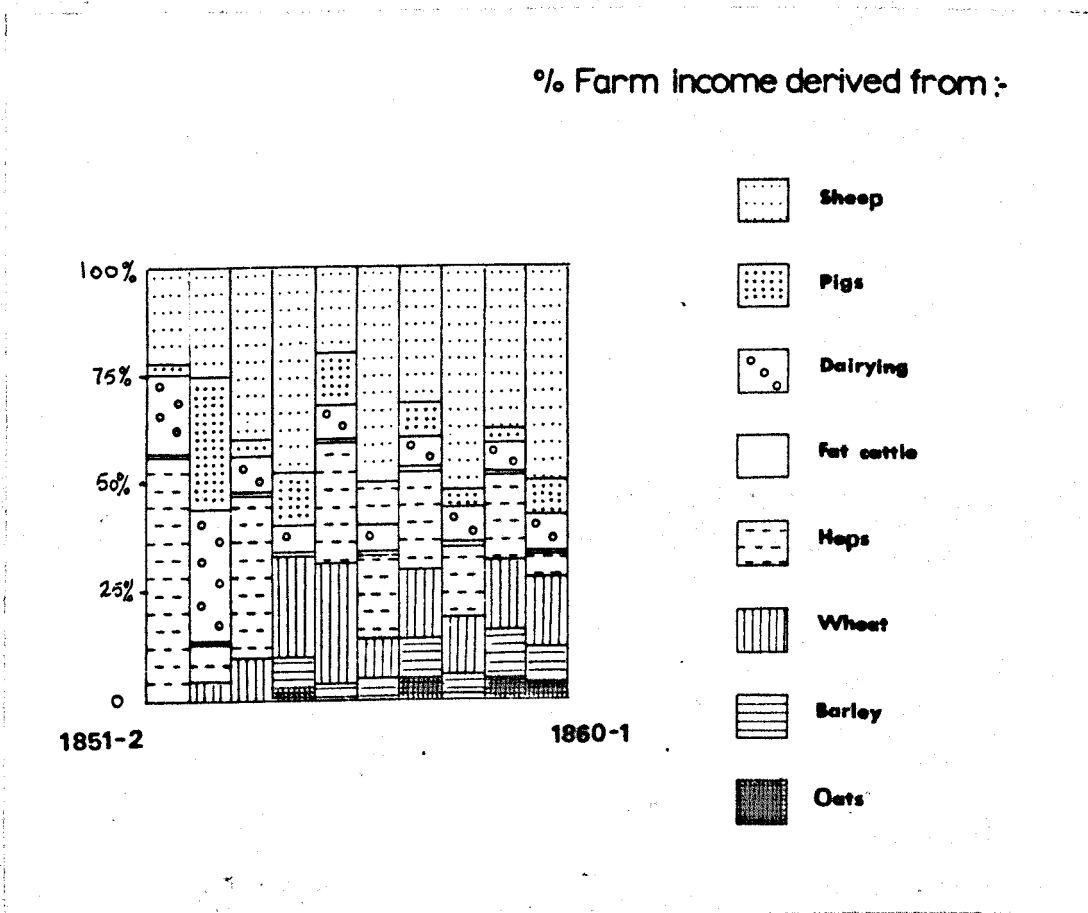


FIG.8:7. Sources of income on a light land farm, 1851-61.

Source: Surrey Record Office, Ware Estate Papers, Acc. 705.

commented "...I like the using up of the little plots of low ground as at present in hops," evidence of the careful husbandry which characterized the light lands, turning even small patches of land to good account.³⁴ Hops, though a high value crop, were a speculative venture. Their yields varied considerably from year to year, giving the seasonal fluctuations evident in Figure 8:7. Increased intensity, through greater diversity in livestock and cropping practices, was associated with increasing investment in artificial manures. During the 1830's and 1840's, guano, bone dust, nitrate of soda and gypsum were all being applied to the Greensand soils, a process which continued throughout this district to 1870.³⁵ Some farmers however, still advocated a more traditional approach, believing it more economic to "...feed the soil by feeding sheep with oil cake rather than by using artificials."³⁶

While these signs of improvement were manifest throughout much of the Lower Greensand, the district near Haslemere in the extreme south-west stands out as an area of little change. The remoteness of this area cannot have encouraged agricultural advance, and when this was allied to low crop yields, there was little inducement to invest the considerable amounts of capital needed to bring slightly increased returns. Whereas oats decreased in importance elsewhere, here they remained the only significant modification to the Norfolk-four course, during the period under consideration. In the context of the county this was not a backward district, but it did not share the tendency to greater diversity and flexibility which characterized the rest of the Lower Greensand.

The Bagshot Sands - the limits of light land improvement. - In 1841, Brayley, considered that "although many inclosures have taken place within the last forty years, the inclosed heaths have by no means derived that advantage from cultivation of which they are fully susceptible under more efficient processes."³⁷ The limited improvements which were effected in the nineteenth century on the

"parched and leathery" heaths waited on developments in communications, the effects of which were not felt until the 1840's. It was even claimed that "there are no facilities for obtaining artificial manures," and although this was undoubtedly an exaggeration, before 1840, it contained an element of truth.³⁸ Both before and after the opening of the railway which served this area in 1838, the most common rotations were similar to those followed on other light lands, where sheep fed the arable land in a spiral of improvement. The wheat yields were often so low, however, that this crop was sometimes relegated to a relatively minor place, being surpassed in acreage by rye and barley (Fig.6:3). At Pirbright for example, wheat occupied only 8% of the recorded arable acreage in 1841, while of Worplesden it was said, "...the four course rotation is usual although the soil is not up to producing wheat more than once in five or six years."³⁹ The large rye acreages distinguished this area from the rest of the light lands. Although this crop does not yield well on poor soils, it provided a useful spring feed for sheep.

Some landowners saw less intensive land-use in the form of plantations of Scotch fir and larch, as likely to yield a better return than tillage.⁴⁰ The early years of the century saw the beginnings of the development of what was to become a major land-use component in the form of woodland. Had the Sands been located nearer to the Metropolis, they might well have been used more intensively. Cobbett viewed the earlier attempts at improvement here as "...misapplied capital which should be concentrating on the good lands."⁴¹ The opening of the London and Southampton railway in 1838 brought the London market for liquid milk and the produce of nursery and market garden within easier reach. This change in accessibility failed to generate a revolutionary change in land-use. Specialist activities expanded, particularly nursery gardens, producing "American plants," but their effect on the land-use pattern was negligible. The Enclosure Award for Windelsham was made in 1814 but fifty years later a few nursery grounds occupying a small acreage and some coniferous plantations were the only signs of improvement. Much of the 4000 acres included in the Award remained under heath with scattered conifers, much as it was in 1800. On the

more favourable soils of the district, there was greater diversity in both cropping and livestock husbandry. after 1840, as cattle and pig fattening developed (Fig.7:12). Thirty years later, there was little to differentiate the agricultural practices of the physically more favoured stretches of the Bagshot Sands from those of the Lower Greensand.

Time and again, one theme has been discerned on the varied soils of the light lands - diversification. This minimized dry season losses, provided a greater range of fodder crops, both to feed livestock and to extend the period of fodder availability. A range of enterprises helped to offset price fluctuations in any one crop or livestock product and used labour more efficiently throughout the year. Changes were seldom dramatic.

The Weald clay. - During the first four decades of the nineteenth century, Wealden farming exhibited few changes, indeed the cropping pattern, at c 1840, was remarkably uniform and differed little from that of 1800 (Figs. 3:5; 6:3). The most common rotation, "...somewhat antiquated but still practised to a great extent," was fallow for wheat, oats and sown grasses.⁴² London was too distant to stimulate change. This was an area remote from markets, ill-drained, containing few livestock and whose small farms consisting of diminutive fields with broad hedgerows were often held on yearly tenancies.⁴³ Be that as it may, there were some changes in agricultural practice.

A comparison of the 1801 Crop Returns and the Tithe Reports suggests a reduction in the cereal acreage, which is confirmed in the Select Committee Reports of 1833 and 1836. On being asked what he would do with a Wealden farm, George Smallpiece replied in 1836, "I would not look at the price of wheat in that bargain, I should turn it to better account, I should throw it into pasture and keep stock upon it."⁴⁴ Many Weald clay farmers agreed with him and land was laid down to grass, a trend which continued beyond the crisis

years of the 1830's. In 1845 however, the following advice was proffered: "... a great deal (of land) doesn't pay the low rent they give it in its present state as grass, a greater rent would be obtained if it were broken up and if drained it could then be used for turnips and roots."⁴⁵ It might be thought that the depression years would have induced farmers to rely less heavily on wheat as a source of cash income, but this was not the case. The reduction in tillage was chiefly achieved through a diminution in oats and in fact wheat sometimes replaced oats as the leading crop. At least this crop gave some cash return, in an area too remote to produce higher value products.

Low stock numbers, frequently the cause of critical comment, were further reduced, as a consequence of the sheep rot of the 1830's, and although a few cattle were fattened in some parishes, livestock did not figure prominently in the agricultural systems of the Weald. Only the merest beginnings of improvement were in evidence at 1840, expressed in increases in the area under turnips and beans. A few years later, Sydney Hawes was still apprehensive of the prospects of improvement in the Weald:⁴⁶

...it is evident that on the undrained and shaded lands of the Weald a tenant farmer, who has perhaps no passable road to market but only a clay lane through which horse and man can hardly travel for many weeks in the year, must go on summer fallowing for wheat, must be content with few or no green crops and can keep but little livestock.

Nevertheless, even as he wrote, Wealden farmers were modifying their livestock and cropping practices, introducing changes which, in the context of Weald clay farming, might be considered revolutionary. By 1870, the narrow combinations described for 1840 were unusual (Fig.6:4). According to Evershed, these changes were in evidence in 1853, although Caird had not noticed them two years earlier.⁴⁷ Altogether Caird considered that the region "...yields scarcely a subsistence to the cultivator, affords a scanty rent to the owner and a niggardly supply of work to the labourer."⁴⁸ It is difficult to reconcile this view with that of Evershed who was a local man.

Since he farmed in the agriculturally most advanced part of the county, it is unlikely that his view of Wealden farming would be distorted. What, then, were the catalysts of the changes which took place here after 1840?

The proverbially bad roads had hindered the movement of stock and crops to market and had added to the difficulties of the farmer who wished to apply lime or the new artificials to his land. It might, therefore, be postulated that changes in communications, (see supra pp.151-156), were a contributory cause of the improvements in agricultural practice. It is unlikely that this was the whole, or even the principal, part of the explanation. Improved accessibility did not mean that stock could be kept on the poorly drained land, or that turnips and barley could be grown successfully. It is in fact difficult to explain these changes without reference to improvement through drainage, which was often cited as the greatest barrier to agricultural advance in the Weald. References in contemporary material to drainage are seldom unambiguous. Not only is underdrainage seldom specified, but several types of underdraining, including mole ploughing, brushwood and stone drains, were being laid at the same time. Although bush drains might last twenty to thirty years, and mole ploughing remain effective for twenty years, neither was considered permanent, as there were several hazards to which they were subject, which might reduce their useful life.⁴⁹ Underdrainage using the more primitive methods had taken place, prior to 1840. The depression years of the 1830's witnessed a flurry of drainage activity as a means of using the abundant cheap labour, which was then available.⁵⁰ There is, however, no evidence to suggest that these attempts at drainage affected large areas of the Weald. In the early 1850's, Evershed and Caird agreed that much underdrainage was needed in this district. Between 1850 and 1870, landlords were providing tiles and pipes, sometimes money was allowed for the tenant to purchase them, but most commonly the tenant laid the pipes and paid the landlord's interest usually at 5%. The valuer to the Christ's

Hospital Estate recommended in 1845 that underdrainage, with pipes be carried out where necessary.⁵¹ When the leases fell in during the 1850's and 1860's, new agreements embodied the necessary drainage clauses. By 1865, improvements in the condition of the land, ascribed to its underdrainage were noted and when the opportunity presented itself, rents were raised by 50 to 100%.⁵² There is a considerable amount of evidence, mostly in the form of drainage clauses embodied in farm leases, to suggest that pipe drainage was being applied to these claylands between 1850 and 1870.⁵³ The problem of quantifying this evidence to provide a measure of the areal extent of land drainage, remains insuperable.

During these years, the cereal acreage remained almost unaltered, although there were changes in the relative importance of the constituent crops. Barley began to figure quite prominently in Wealden rotations, despite Haxton's comment that it could not be produced on these soils.⁵⁴ This crop was chiefly grown for pigs; its adoption was part of a general increase in the amount and variety of fodder crops after 1840. The expansion of the turnip acreage, traditionally a light land crop, might likewise best be explained by reference to better drainage, since this crop does not succeed on poorly drained soils. Tares and mangolds had also been widely adopted. Tares were recorded in the June Crop Returns, suggesting that they were being used as a fallow crop to prepare the soil for the cereals which followed, as well as providing a much needed addition to the range of feed crops. Mangolds, yielding well on heavy land, were grown for the dairy cattle kept in parishes near the line of rail and for use in the yard fattening of cattle (Figs.7:11; 8:6).⁵⁵ The extension of the hay and permanent pasture acreages at the expense of cereals during this period produced an increasing amount of fodder. This meant that one of the chief impediments to agricultural advance in the Weald after drainage was thus removed.⁵⁶ These changes in land-use took place within an organizational framework which was modified as fields were enlarged and small farms were replaced by larger (Fig.8:5b). The growth of the London market might be seen as the first cause of agricultural improvement in the Weald after 1840, but reference must also be made to land drainage and to the adoption

of elements of the diversified farm practices which had long been in evidence on the light lands of the county.

This consideration of changes in agricultural land-use has of necessity been concerned with minutiae. Apart from on the Weald clay agricultural developments were rarely dramatic but none the less were significant. The nature of population change, urban development and changing land values suggests that proximity to a rapidly growing city had little effect upon rural Surrey. This finds confirmation in the agricultural pattern. Agricultural change can best be explained by a slow process of improvement, by responses to changes in price and season and by a desire to make more efficient use of the land within an environmental framework which provided numerous opportunities and constraints.

¹ A discussion of the problems of interpreting changes in rent is found in:

F.M.L. Thompson, English Landed Society in the Nineteenth Century, (London:1963), pp.217-220.

The use of the Property Tax and Schedule A of the Income Tax as examined in:

D.B.Grigg, "Changing regional values during the Agricultural Revolution," Transactions of the Institute of British Geographers, No.30, 1962.

D.B.Grigg, "An index of change in English farming," Transactions of the Institute of British Geographers, No.36, 1965.

²R.E. Prothero, English Farming, Past and Present, (London:1912), pp.213-215.

J.D.Chambers and J.E.Mingay, The Agricultural Revolution 1750-1880, (London:1966), pp.106-114.

³Surrey Record Office, Clayton Estate Rentals, 60/5/302-15.

⁴Guildford Muniment Room, Mr. Webb's Rent Book, 5/6/24.

⁵The Select Committee of 1820 attributed the agricultural distress they were investigating to abundant harvests but also to an extension of tillage and to overproduction.

Great Britain, Parliament, Parliamentary Papers, 1820, Vol.II. Report of the Select Committee on Agricultural Distress.

⁶Great Britain, Parliament, Parliamentary Papers, 1836, Vol.VIII, 1st Report of the Select Committee on Agricultural Distress.

⁷Surrey Record Office, Barrow Green Estate Papers.

⁸Surrey Record Office.

⁹Ibid.

¹⁰Ibid.

¹¹Surrey Record Office. Clayton Estate Rentals, 60/3/302-15.

¹²Surrey Record Office, Wyatt Edgell Estate Papers. Acc.871.

¹³Surrey Record Office, Losely Estate Papers, Acc.317, Box 48 (IV).

¹⁴Great Britain, Parliament, Parliamentary Papers, 1836, Vol.VIII, 1st Report of the Select Committee on Agricultural Distress, Q.2978; 2924.

¹⁵Ibid. Q.2966.

¹⁶Surrey Record Office, Tithe Apportionment Papers - Charlwood, 248/13/30.

¹⁷Great Britain, Parliament, Parliamentary Papers, 1836, Vol.VIII, Q 2978.

¹⁸Surrey Record Office, Rooksnest Estate Papers, 61/10/104.

¹⁹D.B.Grigg, The Agricultural Revolution in South Lincolnshire, (Cambridge: 1966), pp.122-127.

²⁰Ibid, pp.188-189.

²¹Great Britain, Public Record Office, Agricultural Returns, (1870; 1873), M.A.F. 68. 261; M.A.F. 68. 318.

²²The 1866 data has been used despite the probable errors associated with the early years of the Agricultural Returns, for the information was collected in March for the first and only time. Subsequently the returns were made in June, by which date there would have been very few sheep on Surrey farms.

Great Britain, Public Record Office, Agricultural Returns, (1866), M.A.F. 68.65.

²³Great Britain, Public Record Office, Tithe Assistant Commissioner's Reports, I.R.18.

Great Britain, Public Record Office, The 1801 Crop Returns, H.O. 67.24; H.O. 67.4.

For the parishes of Little Bookham, Effingham, Headley, Chipstead, Carshalton and Farley.

²⁴S.Evershed, "On Cropping and Cultivating Light Land," Journal of the Royal Agricultural Society of England, XIV (1853).

²⁵Great Britain, Public Record Office, Tithe Assistant Commissioner's Reports, I.R.18, 10103, Carshalton.

²⁶Great Britain, Public Record Office, Tithe Assistant Commissioner's Reports, I.R.18, 10188, Shere.

²⁷Great Britain, Parliament, Parliamentary Papers, 1844, Vol.V. Report of the Select Committee to Enquire into the Enclosure and Improvement of Commons and Land held in Common, Q.690.

²⁸ Surrey Record Office, Ware Estate Records, Acc.705.

²⁹ Great Britain, Public Record Office, Tithe Assistant Commissioner's Reports, I.R.18, 10175; 10146, Peperharrow and Haslemere.

³⁰ Guildford Muniment Room, Middleton Estate, General Accounts 1839-1840, 145. Box 42 (2); Losely Estate Papers, 1087/5/7/3.

³¹ H.Evershed, "The Agriculture of Kent, Surrey and Sussex," Journal of the Bath and West of England Agricultural Society, 3rd Series, III (1871).

³² Surrey Record Office, Ware Estate Records, Acc.705.

³³ Ibid.

³⁴ Ibid.

³⁵ Gypsum was being applied to the Losely Estate farms by 1834. On the Middleton Estate nitrate of soda was in use by 1839, thus placing it in the van of improvement if Thompson is correct in believing that the application of nitrates dates from the early 1850's.

Guildford Muniment Room, Losely Estate Papers, 5/7
Middleton Estate, General Accounts, 145. Box 42 (2).

F.M.L. Thompson, "The Second Agricultural Revolution, 1815-1880," Economic History Review, XXI (1968).

³⁶ Evershed, "The Agriculture of Kent, Surrey and Sussex."

³⁷ W.Brayley, A History of Surrey, (London:1841), Vol.I, p.200.

³⁸ Great Britain, Public Record Office, Tithe Assistant Commissioner's Reports, I.R. 18, 10215, Worplesdon.

³⁹ Ibid.

⁴⁰ Brayley, History of Surrey.

⁴¹ W. Cobbett, Rural Rides, (London:1830).

⁴² Great Britain, Public Record Office, Tithe Assistant Commissioner's Reports, I.R.18, 10102, Capel.

⁴³ In several parishes the Tithe Assistant Commissioners recorded that there were as many acres of hedgerow as were sown with wheat, which was the principal crop.

Great Britain, Public Record Office, Tithe Assistant Commissioner's Reports, I.R.18, 10100; 10110, Burstow, Chiddingfold.

- ⁴⁴Great Britain, Parliament, Parliamentary Papers, 1836, Vol.VIII, First Report of the Select Committee on Agricultural Distress, Q.3137.
- ⁴⁵Great Britain, Parliament, Parliamentary Papers, 1845, Vol.XII, Q.761.
- ⁴⁶S.Hawes, "Notes on the Wealden Clay of Sussex and its cultivation," Journal of the Royal Agricultural Society of England, XIX (1858).
- ⁴⁷Evershed, "On the Agriculture of Surrey."
Caird, English Agriculture.
- ⁴⁸Ibid, p.123.
- ⁴⁹Great Britain, Parliament, Parliamentary Papers, 1836. Vol.VIII, Third Report of the Select Committee on Agricultural Distress, Q.11047.
Great Britain, Parliament, Parliamentary Papers, 1845, Vol.XII. Report of the Select Committee on Draining Entailed Estates, Q.182.
- ⁵⁰Great Britain, Parliament, Parliamentary Papers, 1836, Vol.VIII, First Report of the Select Committee on Agricultural Distress, Q.3143.
- ⁵¹City of London Archives, Christ's Hospital Estate Records, View Books, 1847, M.S. 12834.
- ⁵²Ibid, 1865, M.S. 1874.
- ⁵³Surrey Record Office, 84/11/11 (1852); Acc.388/7 (1859); 80/5/6 (1874); Acc.317, Box 563 (ii), (1855).
- ⁵⁴Haxton, "On the Cultivation of Oats," Journal of the Royal Agricultural Society of England, XII (1851).
- ⁵⁵H.Evershed, "The Early Fattening of Cattle especially in the Counties of Surrey and Sussex," Journal of the Royal Agricultural Society of England, 2nd Series, XIV, (1878).
- ⁵⁶Hawes: "Wealden Clay of Sussex," p.196.

CHAPTER IX

CONCLUSIONS

Perhaps the most remarkable feature of the period under review was the constancy of the "sharp discontinuity" between the advancing Metropolitan Margins and "rural" Surrey. The former was characterized by increasing urban dominance, as its population and built-up area expanded, whereas the changes that have been recorded for the remainder of the county support Saville's contention that "...at the end of the nineteenth century the countryside clung tenaciously to its rural way of life."¹ Despite its proximity to London, rural Surrey experienced changes in land-use which were in line with developments in other parts of the country. Studies of agricultural change in the nineteenth century draw attention to the contrasts between the light soils and the heavy clays in respect of their agricultural potential, the degree of improvement achieved upon them, and the reaction of those who farmed them to price fluctuations.² In Surrey, excepting the London clay, this distinction was in evidence throughout. On the light soils of the county, the extension of the fodder crop spectrum and the increasing importance of livestock, valued for their meat rather than for the dung they brought to the cereals, paralleled similar developments in Lincolnshire, Wiltshire and the East Riding of Yorkshire.³ In their study of Suffolk farming, Thirsk and Imray described what may well have been an exceptional situation when they wrote of the success in clayland farming consequent upon the development of a comprehensive system of drainage by 1850.⁴ In Surrey, the London clay saw some improvement by mid-century, under the stimulus of proximity to the London market. However, beyond the Metropolitan Margins, the changing agricultural pattern on the heavy clays of the Weald before 1850 has much in common with the general picture described by Jones and Fussell and the detailed analyses of Harris and Grigg.⁵

Land drainage has been seen as the means by which "...the long stranglehold of the naked fallows on the claylands was broken."⁶

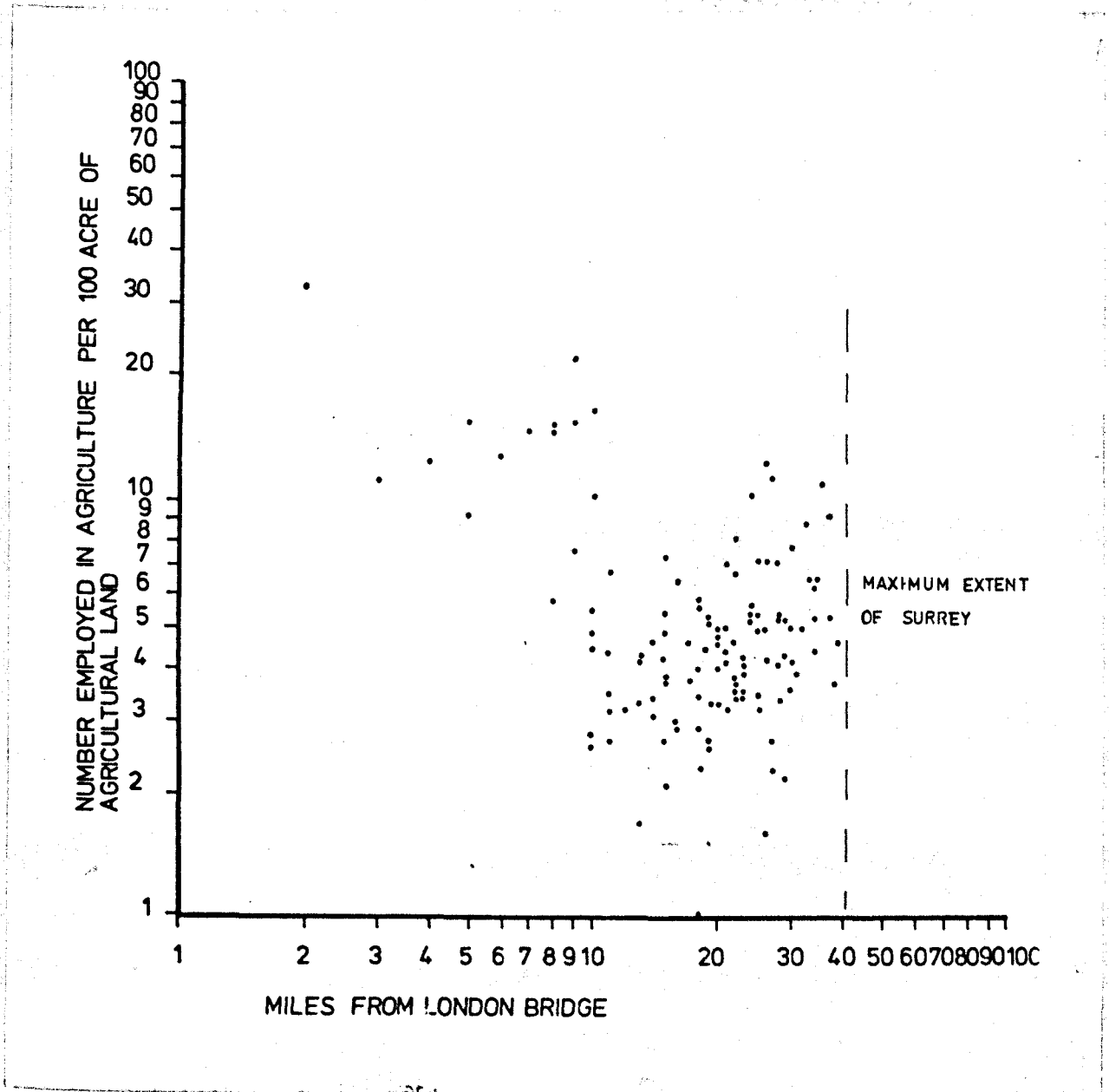


FIG. 9:1. Employment in agriculture and distance from London, 1831.

Source: Census of Population. 1831.

The extent to which drainage was adopted after 1840 and the degree of success which attended it, have been the subject of considerable controversy.⁷ The evidence for the Weald is inconclusive. Whilst there were signs of the improvements alluded to by Sturgess, there is proof also of the partial success of land drainage suggested by Collins and Jones.⁸ There is, however, little doubt that, although this district remained a laggard sector when compared with the light lands, improvements were made in cropping and livestock practices after 1850. These cannot be adequately explained without reference to land drainage.

By 1870, the process of "sectoral advance" had reduced the amount of regional variation in agricultural land-use and land values, a situation similar to that described by Grigg for South Lincolnshire.⁹ Fussell concluded a brief examination of Home Counties farming with a statement that "... so in the end we come back to the fact that there is really not a lot of good land in Surrey...but Surrey was at no time between 1840 and 1880 an example of the best farming of that epoch."¹⁰ Whilst Surrey farming was not in the vanguard of agricultural improvement during these years, there is nevertheless ample evidence to suggest that its practices were consistent with those found elsewhere in the arable counties of England. It is, perhaps, more remarkable that this district, which lay so near to London, was in step with more distant locations. Although rail communications permitted the production of liquid milk or market garden produce in the more remote parts of the county, this was no special instance of London's influence, for districts much more removed from the Metropolis were similarly affected.

The agricultural changes in the Metropolitan Margins stood in marked contrast to those described for rural Surrey. Changes in land use and livestock practice were associated with London's

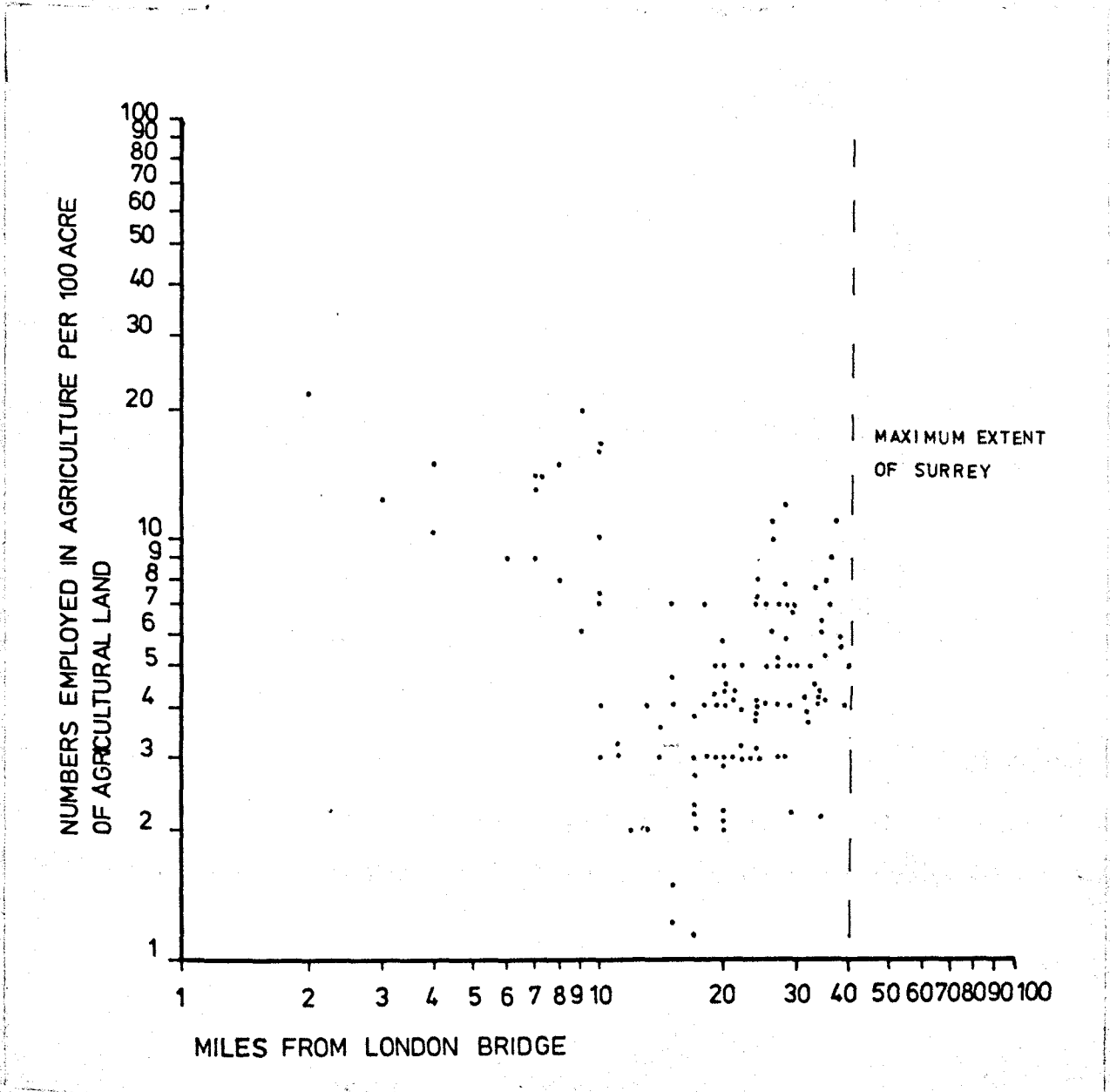


FIG. 9:2. Employment in agriculture and distance from London, 1871.

Source: Census of Population, 1871.

rapid growth, which led to an increased intensity in the local agricultural systems. By 1870, those parts of the Metropolitan Margins which lay nearest the continuously built-up area, were subject to costs which could not be overcome through increased intensity in agricultural production. This was comparable to Hoover's zone of "watchful waiting" where "...land values were high relative to actual income as land was transferred from rural to urban uses."¹¹

The search for laws concerning the spatial ordering of man's activities, of necessity involves the bridging of the gulf between the setting up of theories or models of human behaviour and their empirical testing. Interaction between town and country in Surrey produced a pattern of land-use, which finds parallels in the theoretical patterns suggested by von Thunen, where linear distance and transport costs were important. Where soil factors were of greater moment, comparison can be made with elements of Ricardo's ideas concerning land rent.¹² The relationships between labour intensity and distance from London, both in 1831 and 1871, provide an instance of this division. The exponential form of the graphs (Figs. 9:1 and 9:2) is confirmed when the data is plotted logarithmically and a straight line relationship demonstrated (Figs. 6:7 and 6:8). The limits of the Metropolitan Margins were marked by a break-point in these curves. Beyond this point, distance can be held to have been of less significance, whereas within the Metropolitan Margins, it was a far more potent influence, in agricultural location; in respect of combinations of crops and in the intensity of production. This picture is confirmed by empirical evidence, although much of this does not lend itself to numerical analysis. Within the Metropolitan Margins, distance from London was of paramount importance, in the cost structure of agriculture; its operation gave rise to a series of linear gradients for the economic rents produced by the intensive and semi-intensive activities followed within this zone (Fig. 9:3).

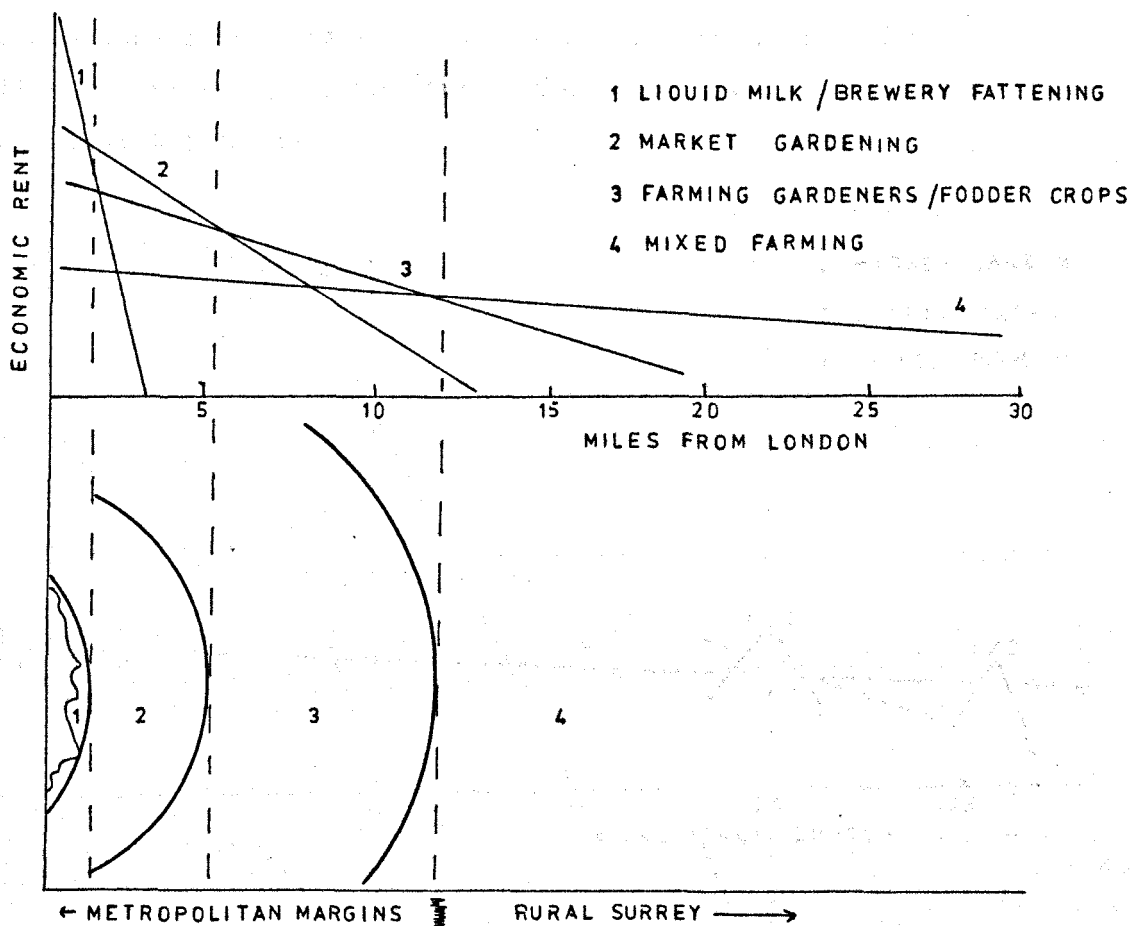


Fig.9:3. Diagrammatic pattern of land-use zones in Surrey c.1800.

The intersection of the graphs produces a pattern similar to those of Surrey, at about 1800 and to the inner zones of the "Isolated State." Beyond this district, variations in land-use accorded with differences in land potential, prior to the development of the railways, which produced avenues of higher intensity, which followed the line of rail. The resultant pattern bears comparison with Black's model and with the urban density surface

postulated by Simmons, where peaks of intensity and land value were located at points of greatest accessibility.¹³ In rural Surrey, these peaks were either suburban nuclei or rail routes which stimulated the production of cash products such as liquid milk or market garden produce. The variations in economic rent with distance from London (Fig.9:4) compare well with the picture described by Hoover for a district with five market centres, except that the area

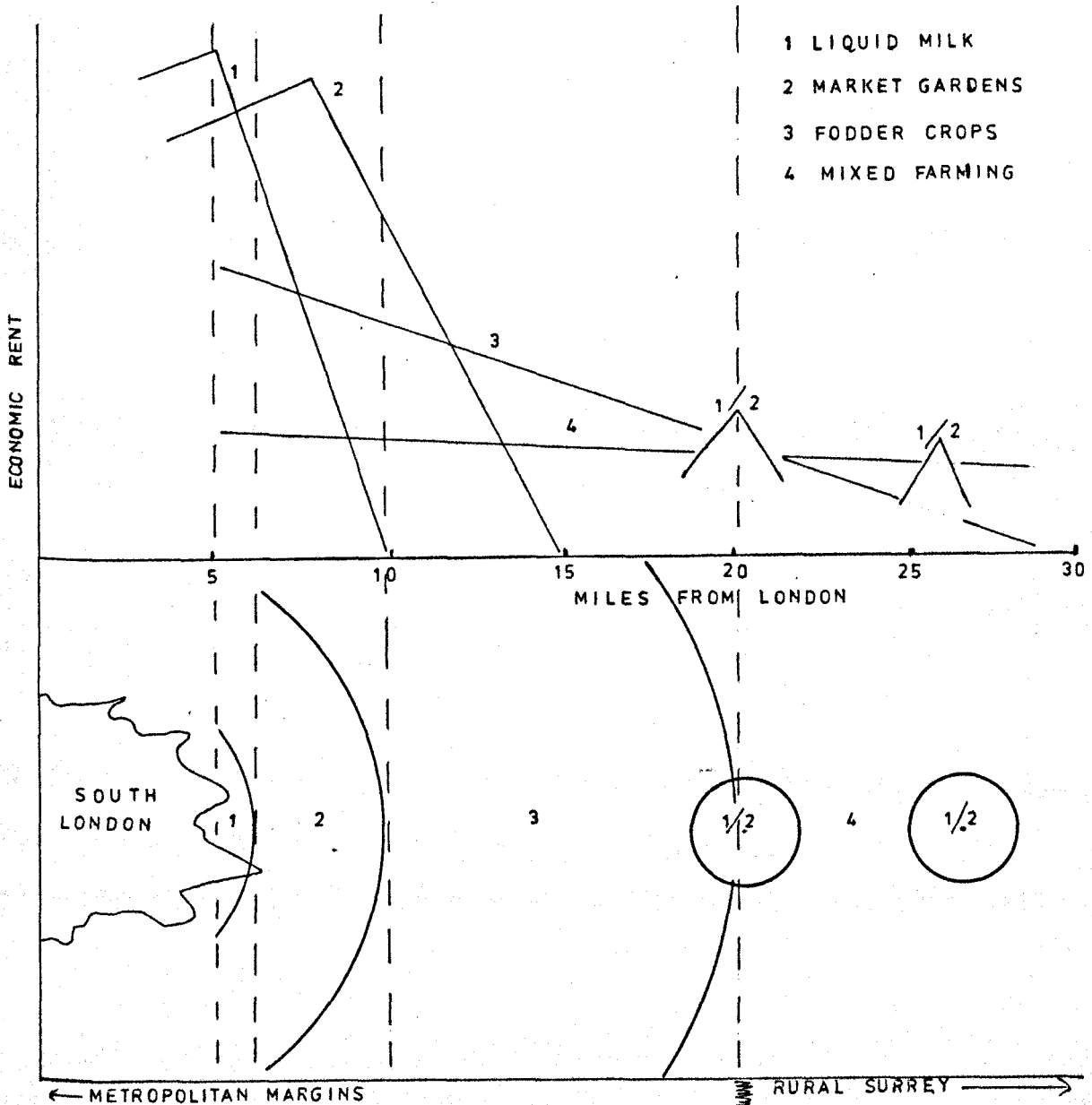


Fig. 9:4. Diagrammatic pattern of land-use zones in Surrey c.1870.

nearest London would have yielded a lower economic rent; this would then rise to an optimum point before decreasing again, in the manner suggested by Sinclair.¹⁴

Within the Metropolitan Margins, the town was dominant and changes in the countryside are best explained by reference to suburban growth. The towns of the Metropolitan Margins were distinguished from those of rural Surrey by their size, functions and degree of areal specialization in their commercial activities. For rural Surrey this relationship between town and country was reversed, as the towns continued to serve their rural hinterlands. Thus in Surrey at 1870, despite the considerable expansion of the Metropolis it was still possible to find "... the place where London ends and England can begin."¹⁵

- ¹ J. Saville, Rural Depopulation in England and Wales, 1851-1891. (London:1957), p.13.
- ² E.L.Jones, The Development of English Agriculture, 1815-1873. (London:1968).
- E.L.Jones, "Agriculture and Economic Growth in England," Journal of Economic History, XXV (1965).
- G.E.Fussell, "The Dawn of High Farming in England," Agricultural History, VXII (1948).
- E.L.Jones, "English Farming Before and During the Nineteenth Century," Economic History Review, 2nd Series, XV (1962).
- E.J.T.Collins and E.L.Jones, "Sectoral Advance in English Agriculture, 1850-1880," Agricultural History Review, XV,(1967).
- Chambers and Mingay, Agricultural Revolution.
- ³ Grigg, Agricultural Revolution in South Lincolnshire.
Harris, Rural Landscape of the East Riding.
R.Molland, "Agriculture, 1793-1870," in The Victoria County History of Wiltshire, ed. by R.B.Pugh and E.Crittall. (London:1959).
- ⁴ J.Thirsk and J.Imray, eds., "Suffolk Farming in the Nineteenth Century," Suffolk Records Society, I (1958).
- ⁵ Jones, Development of English Agriculture, pp.22-24.
Fussell, "Dawn of High Farming."
Harris, Rural Landscape of the East Riding.
Grigg, Agricultural Revolution in South Lincolnshire.
- ⁶ F.M.L.Thompson, English Landed Society, p.249.
- ⁷ R.W.Sturgess, "The Agricultural Revolution on the English Clays," Agricultural History Review, XIV (1966).
Collins and Jones, "Sectoral Advance."
R.W.Sturgess, "The Agricultural Revolution on the English Clays: a Rejoinder," Agricultural History Review, XV (1967).
E.H.Whetham, "Sectoral Advance in English Agriculture, 1850-1880," Agricultural History Review, XVI (1968).
- ⁸ Sturgess, "Agricultural Revolution."
Collins and Jones, "Sectoral Advance."

- ⁹Grigg, Agricultural Revolution in South Lincolnshire, pp.188-189.
- ¹⁰G.E. Fussell, "Home Counties Farming, 1840-1880,"
Economic Journal, LVII (1947), 338.
- ¹¹E.M. Hoover, The Location of Economic Activity, (New York:1948),
pp.95-97.
- ¹²P.Sraffa, ed., The Works of David Ricardo (Cambridge: 1960),
Vol.I p.70.
- ¹³Black, Economics for Agriculture.
J.Simmons, (1964) cited in, R.L. Morrill, The Spatial
Organization of Society (California:1970), p.169.
- ¹⁴Sinclair, "von Thunen and Urban Sprawl."
- ¹⁵G.K.Chesterton, Collected Poems (London:1927).

APPENDICES

- I. Indices of dissimilarity for the towns of Surrey, 1839 and 1870.
- II. Changes in rent and arrears of rent for the Clayton Estate, 1800-1832.
- III. Changes in rent and arrears of rent for the Lee Steere Estate, 1848-1870.

Indices of Dissimilarity

<u>Town</u>	<u>Page no. 1839</u>	<u>Page no. 1870.</u>
Croydon	212	219
Kingston	214	221
Guildford	213	217
Richmond	215	220
Farnham	212	221
Dorking	---	218
Godalming	214	222
Reigate	215	217
Redhill	---	218
Leatherhead	---	223
Haslemere	---	223
Epsom	---	223
Surbiton	---	222

1839	
1	1 Croydon
2	2 Kingston
3	3 Guildford
4	4 Richmond
5	5 Farnham
6	6 Dorking
7	7 Godalming
8	8 Reigate
9	9 Epsom
10	10 Leatherhead
11	11 Haslemere
1	-
2	-
3	-
4	-
5	-
6	-
7	-
8	-
9	-
10	-
11	-
1	14
2	15
3	19
4	14
5	12
6	16
7	16
8	18
9	15
10	11
11	23
1	-
2	-
3	-
4	-
5	-
6	-
7	-
8	-
9	-
10	-
11	-
1	10
2	14
3	9
4	8
5	16
6	19
7	9
8	21
9	14
10	21
11	8
1	8
2	4
3	16
4	8
5	15
6	8
7	14
8	16
9	10
10	17
11	15
1	-
2	-
3	-
4	-
5	-
6	-
7	-
8	-
9	-
10	-
11	-
1	16
2	24
3	15
4	14
5	20
6	16
7	24
8	15
9	14
10	20
11	-

Croydon 1839	1	2	3	4	5	6	7	8	9	10
High St. 1	-	18	21	24	26	47	38	55	38	30
North End. 2	-	-	11	34	16	51	50	67	44	42
Church St. 3	-	-	-	29	9	30	39	56	34	32
Surrey St. 4	-	-	-	-	30	44	44	40	27	15
South End. 5	-	-	-	-	-	37	36	53	27	31
Old Town. 6	-	-	-	-	-	-	14	32	18	39
Barrack Rd. 7	-	-	-	-	-	-	-	26	22	33
Market St. 8	-	-	-	-	-	-	-	-	32	25
Bell Hill. 9	-	-	-	-	-	-	-	-	-	19
King St. 10	-	-	-	-	-	-	-	-	-	-

Farnham 1839	1	2	3	4	5
West St. 1	-	25	29	11	23
Castle St. 2	-	-	21	34	39
Downing St. 3	-	-	-	31	46
East St. 4	-	-	-	-	27
Borough. 5	-	-	-	-	-

Guildford 1839	1	2	3	4	5	6
High St. 1	-	14	26	13	20	25
Quarry St. 2	-	-	35	21	17	21
North St. 3	-	-	-	24	36	24
Chertsey St. 4	-	-	-	-	26	12
Spital St. 5	-	-	-	-	-	27
Chapel St. 6	-	-	-	-	-	-

Kingston 1839	1	2	3	4	5	6	7	8	9	10
Town's End. 1	-	29	33	35	26	28	48	28	50	46
Norbiton St. 2	-	-	18	28	11	7	37	28	31	48
Market Place. 3	-	-	-	46	22	21	32	21	25	32
Heathen St. 4	-	-	-	-	30	30	49	50	42	66
London St. 5	-	-	-	-	-	12	29	29	24	43
Thames St. 6	-	-	-	-	-	-	37	22	22	52
Gigg Hill. 7	-	-	-	-	-	-	-	44	19	31
Church St. 8	-	-	-	-	-	-	-	-	25	48
Canbury 9	-	-	-	-	-	-	-	-	-	48
Clarence St. 10	-	-	-	-	-	-	-	-	-	-

Godalming 1839	1	2	3	4	5
High St. 1	-	36	13	44	35
Bridge St. 2	-	-	23	25	31
Church Rd. 3	-	-	-	38	25
Mead Rd. 4	-	-	-	-	35
Ockford Rd. 5	-	-	-	-	-

Richmond 1839	1	2	3	4	5	6
George St. 1	-	28	18	29	24	24
Kew Rd. 2	-	-	33	23	15	31
Upper Hill St. 3	-	-	-	42	31	17
King St. 4	-	-	-	-	35	46
Lower George St. 5	-	-	-	-	-	37
Red Lion St. 6	-	-	-	-	-	-

Reigate/Redhill 1839	1	2	3	4	5	6
High St. 1	-	34	28	45	33	64
Bell St. 2	-	-	10	32	47	70
West St. 3	-	-	-	30	45	84
Market Place. 4	-	-	-	-	17	50
Church St. 5	-	-	-	-	-	100
Redhill 6	-	-	-	-	-	-

Guildford 1870	1	2	3	4	5	6	7	8
High St. 1	-	11	30	38	26	25	40	35
Quarry St. 2	-	-	29	37	29	38	44	38
North St. 3	-	-	-	17	37	42	35	42
Chertsey St. 4	-	-	-	-	88	50	68	50
Spital St. 5	-	-	-	-	-	45	33	49
Chapel St. 6	-	-	-	-	-	-	28	10
Woodbridge Rd. 7	-	-	-	-	-	-	-	33
Friary St. 8	-	-	-	-	-	-	-	-

Reigate 1870	1	2	3	4	5
High St. 1	-	25	50	37	16
Bell St. 2	-	-	33	34	35
West St. 3	-	-	-	37	48
London Rd. 4	-	-	-	-	28
Holmesdale Rd. 5	-	-	-	-	-

Dorking 1870	1	2	3	4	5
High St. 1	-	19	18	19	43
West St. 2	-	-	18	22	25
South St. 3	-	-	-	14	27
East St. 4	-	-	-	-	45
Dene St. 5	-	-	-	-	-

Redhill 1870	1	2	3	4
Station Rd. 1	-	20	35	32
Brighton Rd. 2	-	-	29	26
Mead Vale 3	-	-	-	43
Linkfield St.4	-	-	-	-

Kingston 1870	1	2	3	4	5	6	7	8
Church St. 1	-	28	35	15	21	18	10	18
Clarence St. 2	-	-	51	27	12	29	22	39
Eden St. 3	-	-	-	39	51	53	44	44
High St. 4	-	-	-	-	21	33	25	33
Market Place 5	-	-	-	-	-	24	14	31
Thames St. 6	-	-	-	-	-	-	17	23
London St. 7	-	-	-	-	-	-	-	18
Richmond Rd. 8	-	-	-	-	-	-	-	-

Farnham 1870	1	2	3	4	5
West St. 1	-	20	21	18	11
Castle St. 2	-	-	31	20	23
Downing St. 3	-	-	-	18	17
East St. 4	-	-	-	-	26
Borough. 5	-	-	-	-	-

Surbiton 1870	1	2	3	4	5	6
Victoria Rd. 1	-	21	37	25	17	26
Brighton Rd. 2	-	-	42	16	23	28
Cleveland Rd. 3	-	-	-	31	44	14
Surbiton Rd. 4	-	-	-	-	19	17
Surbiton Hill Rd. 5	-	-	-	-	-	29
Albert Rd. 6	-	-	-	-	-	-

Godalming 1870	1	2	3	4
High St. 1	-	17	50	32
Bridge St. 2	-	-	45	40
Mead Row 3	-	-	-	55
Church St. 4	-	-	-	-

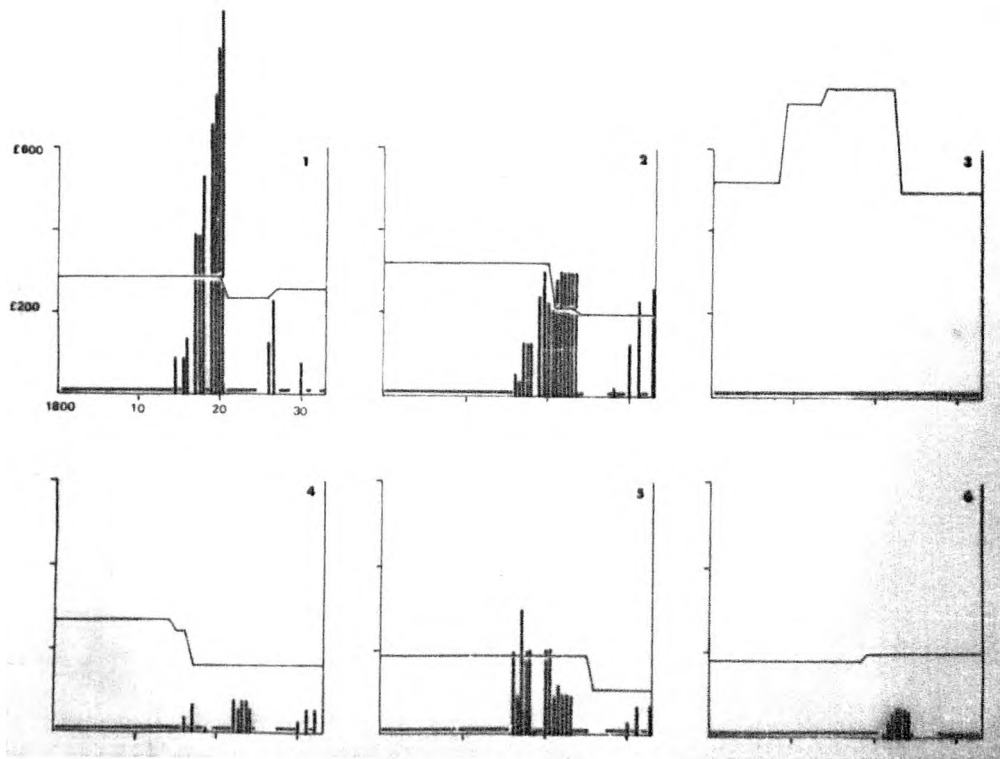
Epsom 1870	1	2	3
High St. 1	-	14	26
South St. 2	-	-	37
East St. 3	-	-	-

Leatherhead 1870	1	2	3
High St. 1	-	33	64
Bridge St. 2	-	-	52
North St. 3	-	-	-

Haslemere 1870	1	2
High St. 1	-	21
East St. 2	-	-

APPENDIX II

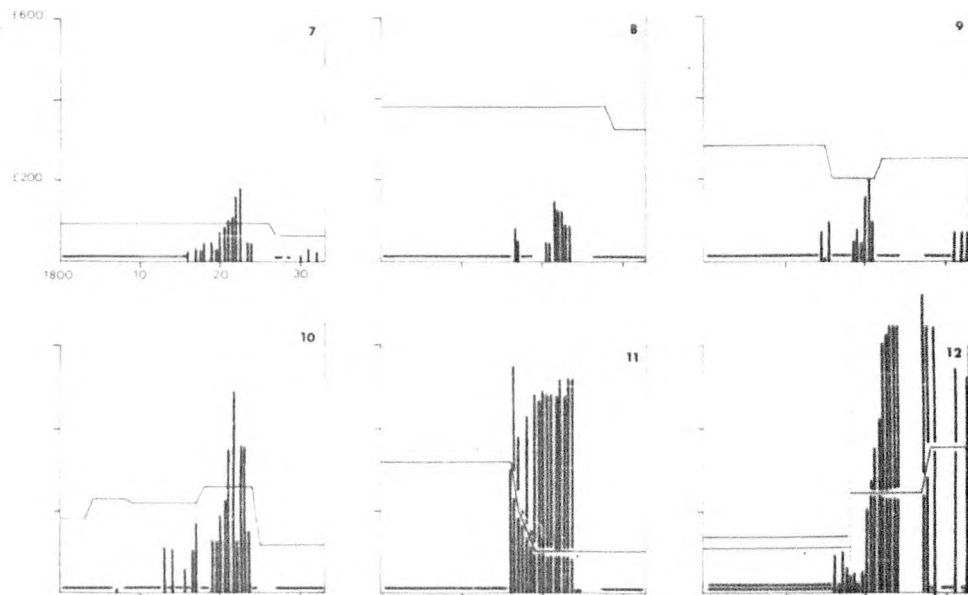
Changes in rent and arrears of rent for the Clayton Estate,
1800-1832.



Note. The horizontal lines represent the farm rents, the histograms show the arrears of rent.

- | | | |
|-------------------|--------------------|---------------------|
| 1. Cucksey's Farm | 2. Field's Farm | 3. Tillingdown Farm |
| 4. The Town Farm | 5. South Park Farm | 6. The Quarry Farm. |

Source: Surrey Record Office, Clayton Estate Rentals, 60/5/302.



Note. The horizontal lines represent the farm rents, the histograms show the arrears of rent.

7. Lodge Farm

8. North Park Farm

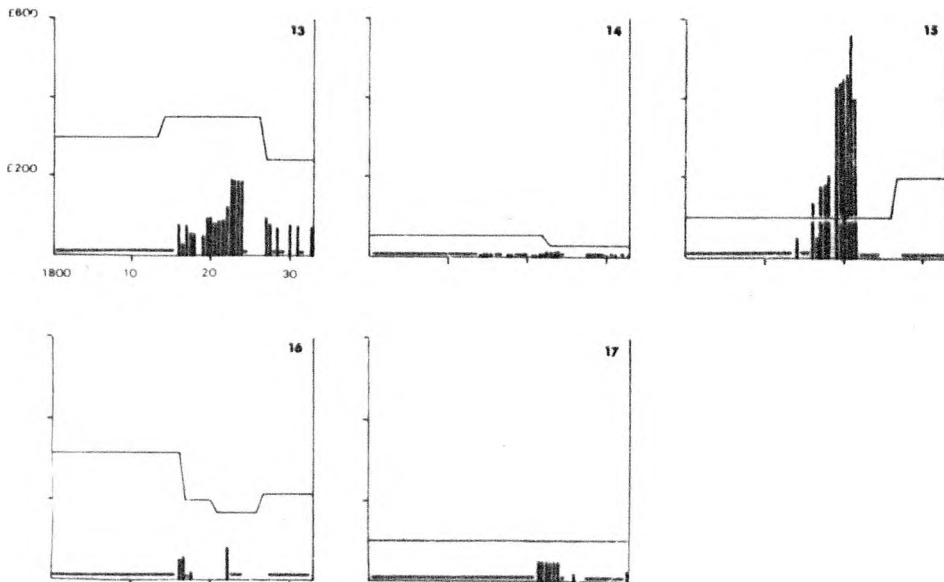
9. Bletchingley Place Farm

10. Wares Farm

11. Flint Hall Farm

12. Chaldon Quarry and

Willey Farms.



Note. The horizontal lines represent the farm rents, the histograms show the arrears of rent.

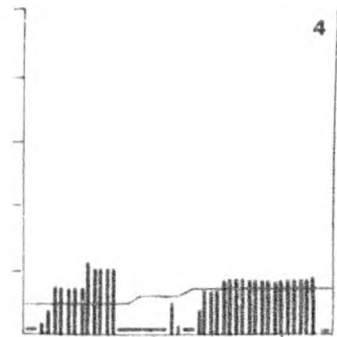
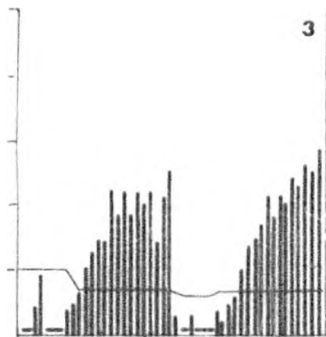
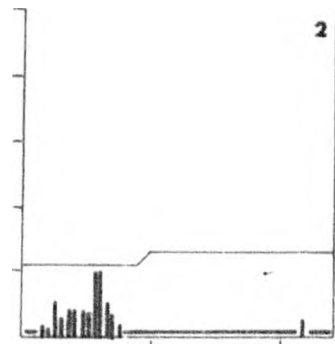
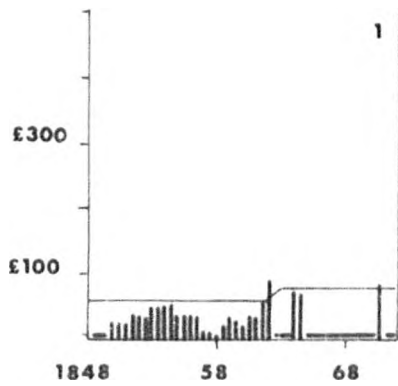
13. New House Farm
16. West Hall Farm

14. Gayhouse Farm
17. Ive House Farm.

15. White Hall Farm

APPENDIX III

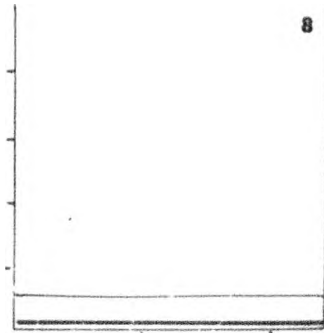
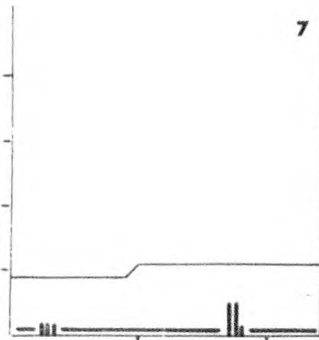
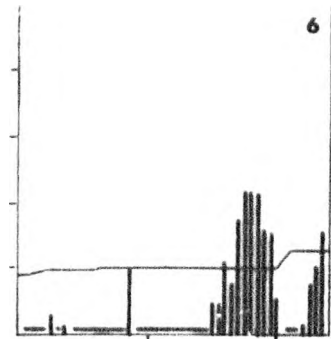
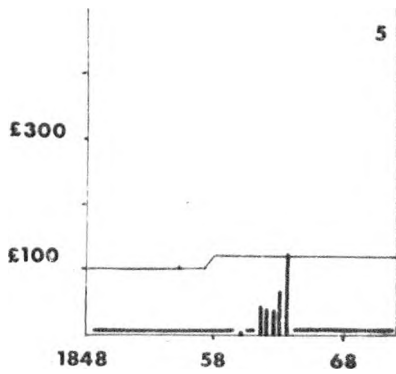
Changes in rent and arrears of rent for the Lee Steere Estate,
1848-1870.



Note. The horizontal lines represent the farm rents, the histograms show the arrears of rent.

- | | |
|----------------------|----------------------|
| 1. Pollman Farm | 2. Cudworth Farm |
| 3. Hales Bridge Farm | 4. Twittenhams Farm. |

Source: Surrey Record Office, Terrier of the Estates of Lee Steere Esquire, 43/3.



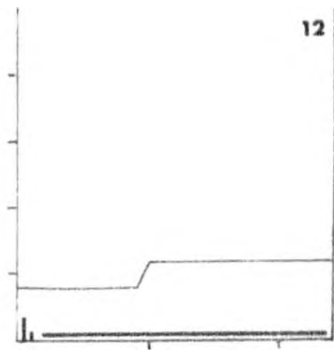
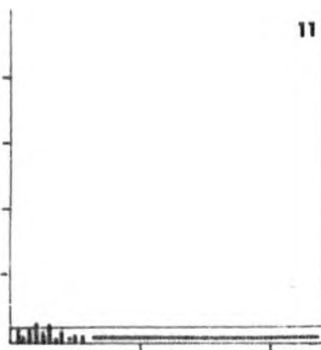
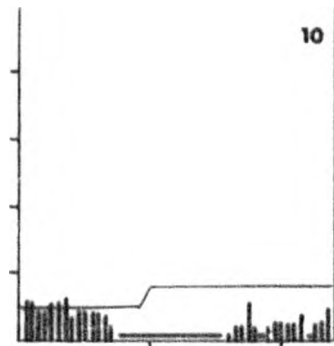
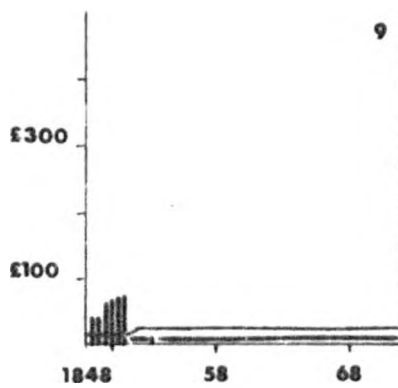
Note. The horizontal lines represent the farm rents, the histograms show the arrears of rent.

5. Thomas Warner's Farm.

6. Hale Farm

7. Ruckman's Farm

8. Woodham's Farm.



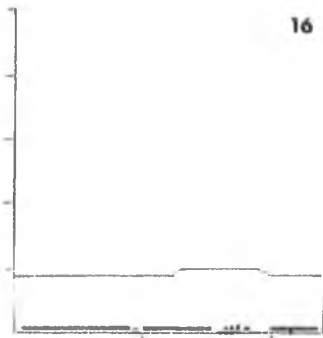
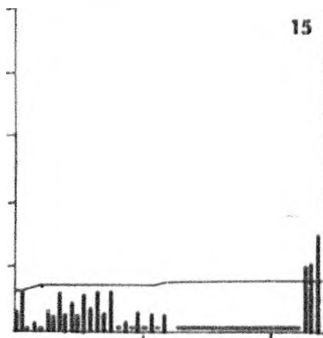
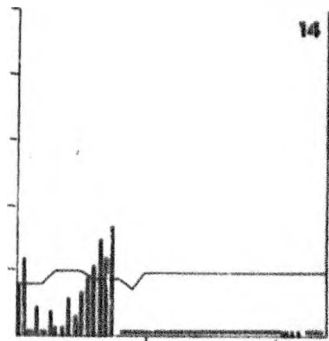
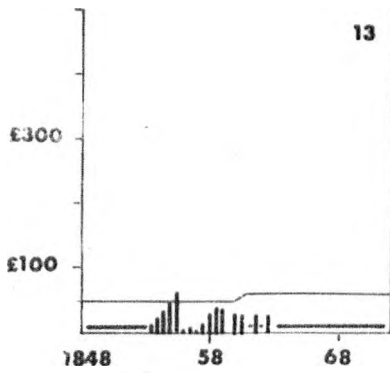
Note. The horizontal lines represent the farm rents, the histograms show the arrears of rent.

9. Abraham's Farm

10. Pinkhurst Farm

11. Jordan's Farm

12. Clarks Green Farm.



Note. The horizontal lines represent the farm rents, the histograms show the arrears of rent.

- | | |
|----------------------|-----------------------|
| 13. Hammond's Farm | 14. Redlands Farm |
| 15. Court Lodge Farm | 16. Bents Brook Farm. |

SOURCES AND BIBLIOGRAPHY

I UNPUBLISHED

Surrey Record Office:

- Ashtead Estate Correspondence (28/4/2).
- Barrow Green Estate Papers (87/32/102).
- Clayton Estate Papers (60/5/302-).
- Account Books of Henry Clutton (Acc:880).
- Dickeridge Estate Papers (Acc:740).
- Frederick Estate Accounts (Acc:292).
- Goulbourn Estate Papers (Acc:319; Acc:426).
- Terrier of the Estates of Lee Steere Esquire (43/3).
- More/Molyneux Estate Papers (Acc:317).
- Monson Estate Papers (Acc:1011).
- Pollèn Estate Papers (Acc:218).
- Rooksnest Estate Papers (61/10-11).
- Walton on the Hill Farm Expenses (62/1/57-69).
- Ware Estate Papers (Acc:705).
- Wotton Estate Papers (Acc:657-658).
- Wyatt Edgell Estate Papers (Acc:871).
- Tithe Apportionments and Maps.
- Court Rolls, Great Bookham (34/25); Banstead (212/6/232).
- Miscellaneous Sale Catalogues, Farm Leases, Maps and Plans.

Guildford Muniment Room:

- Bray Estate Papers (85/16/10).
- Losely Estate Papers (1987/5).
- Middleton Estate Papers (145).
- Miscellaneous Farm Leases, Maps and Plans.

City of London Archives:

- Christ's Hospital Estate Records (M.S.12834).

Minet Library:

Papers in connection with the Enclosure of Wimbledon Common (No.30).

Plan of the Estate of Sir George Warren.

Sale Catalogues (c.63-67).

Surrey Indentures.

Greater London Council Record Office:

Surrey Glebe Terriers (DW/S).

Register of Cowkeepers, Dairymen and Purveyors of Milk, Vol.6, 1889-1892. (PH/REG/2/32).

Public Record Office:

Acreage Returns, 1801. (H.O.67, 24 and 4).

Agricultural Returns, 1866 (M.A.F.68,65).

Agricultural Returns, 1870 (M.A.F.68,261).

Agricultural Returns, 1873 (M.A.F.68,318).

Cattle Plague Enquiry. Weekly Return of Reported Cases of Cattle Plague in Great Britain. (P.C.1.).

Tithe Assistant Commissioners' Reports, Tithe Files (I.R.18).

The War Income Tax, Schedule B. 1806,1815 (E/182/1007;1016).

Census of Population (1861), Enumerators' Books. (R.G.9.363).

British Museum:

King George III's Topographical Collection.

Ordnance Survey, First Edition Surveyors' Drawings.

Theses:

Archer, J.L. "The Industrial History of London, 1603-1640, with Special Reference to the Suburbs and those Areas Claiming Exemption from the Authority of the Lord Mayor" (unpublished M.A. dissertation, University of London, 1934).

Baker, A.R.H. "The Field Systems of Kent" (unpublished Ph.D. dissertation, University of London, 1963).

Bull, G.B.G. "The changing Landscape of Rural Middlesex, 1500-1850" (unpublished Ph.D. dissertation, University of London, 1959).

- Course, E. "The Evolution of the Railway Network of South-East England." (unpublished Ph.D. dissertation, University of London, 1963).
- Carson, P.M. "The Provision and Administration of Bridges over the Lower Thames 1701-1801 with Special Reference to Westminster and Blackfriars" (unpublished M.A. dissertation, University of London, 1954).
- Dyos, H.J. "The Suburban Development of Greater London South of the Thames, 1836-1914" (unpublished Ph.D. dissertation, University of London, 1952).
- Fuller, G.J. "The Development of Trans-Weald Roads through Surrey and Sussex, 1700-1900" (unpublished Ph.D. dissertation, University of London, 1950).
- Gulley, J.L.M. "The Wealden Landscape in the Early Seventeenth Century and its Antecedents" (unpublished Ph.D. dissertation, University of London, 1960).
- Jervis, C.R. "Land-Use and Rural Life in South-West Surrey, a Survey of the Human and Historical Geography of the Rural District of Guildford and Hambledon" (unpublished M.Sc. dissertation, University of London, 1954).
- Jones, E.I.M. "The Progress of Reclamation on the Bagshot Series between the Lodden and the Wey (unpublished M.A. dissertation, University of London, 1963).
- Roden, D. "Studies in Chiltern Field Systems" (unpublished Ph.D. dissertation, University of London, 1965).
- Shave, D.W. "The Agricultural Geography of the Upper Wey Basin in its Regional Setting" (unpublished Ph.D. dissertation, University of London, 1954).
- Swann, B.A.S. "A Study of Some London Estates in the Eighteenth Century" (unpublished Ph.D. dissertation, University of London, 1964).
- Wilkins, P.M. "Surrey about the year 1800" (unpublished M.Sc. dissertation, University of London, 1943).
- Yates, E.M. "A Contribution to the Historical Geography of the Weald" (unpublished M.Sc. dissertation, University of London, 1953).

II. PUBLISHED SOURCES

- Allen, W. A History of Lambeth. London:1826.
- Anderson, J.C. A Chronicle Concerning the Parish of Croydon.
Croydon:1880.
- Anderson, J.C. Upper West and South Norwood. Croydon:1898.
- Anderson, J.E. A History of the Parish of Mortlake. London:1886.
- Baker, A.R.H. and Roden, D. "Field Systems of the Chiltern Hills
and parts of Kent from the Late Thirteenth Century to the Early
Seventeenth Century." Transactions of the Institute of British
Geographers. No.38(1966).
- Baker, A.R.H. "Field Systems in the Vale of Homesdale."
Agricultural History Review.XIV (1966).
- Baker, A.R.H. "Some Terminological Problems in Studies of British
Field Systems." Agricultural History Review. XVII(1969).
- Balsamo, P. "Thoughts on Great Cities." Annals of Agriculture,
XII (1790).
- Barker, T.C. and Robbins, M. A History of London Transport,
Vol.1, The Nineteenth Century. London:1963.
- Bartlett, W.A. A History of Wimbledon. London:1865.
- Barton, N. The Lost Rivers of London. London:1962.
- Beresford, M.W. "The Unprinted Census Returns, 1841, 1851, 1861."
Amateur Historian, .No.8.(1961).
- Black, A and C. Guide Book of Surrey. London:1864.
- Black, J.D. Introduction to Economics for Agriculture. New York:1953.
- Blanch, W.H. The History and Antiquities of Camberwell.
London:1875.
- Bloomfield-Jackson, Rev: Putney, Past and Present, London:1883.
- Bourne, G. The Wheelwrights' Shop. 3rd Ed., London:1943.
- Bourne, G. The Labourer in the Village.
- Bourne, G. Change in the Village. London:1912.
- Bradshaw. Railway Guides. 1839; 1843; 1844; 1850;
- Brayley, W. A History of Surrey. London: 1841.
- Brightling, G.B. Some Particulars Relating to the History and
Antiquities of Carshalton. Croydon: 1872.

- Broderick, G.C. English Land and English Landlords. London:1881.
- Bull, G.B.G. "Thomas Milne's Land Utilization Map of the
London Area in 1800." Geographical Journal, CXXII (1956).
- Butlin, R.A. "Some Terms used in Agrarian History." Agricultural
History Review. IX (1961).
- Cadle, C. "The Farming Customs and Covenants of England."
Journal of the Royal Agricultural Society of England, 2nd Series,
IV (1868).
- Caird, J. English Agriculture in 1850-1851. 2nd Ed., London:1852.
- Cairncross, A.K. and Weber, B. "Fluctuation in Building,
1785-1849." Economic History Review, 2nd Series, IX (1956).
- Chalmers-Morton, J. "Town Milk." Journal of the Royal
Agricultural Society of England, 2nd Series, IV (1868).
- Chambers, J.D. and Mingay, G.E. The Agricultural Revolution,
1750-1880. London:1966.
- Chancellor, E.B. The History and Antiquities of Richmond,
Richmond:1894.
- Chisholm, M. Rural Settlement and Land Use; an Essay in Location.
London:1962.
- Clark, F.L. "The History of Epsom Spa." Surrey Archaeological
Collections, LVII (1960).
- Clark, J.A. "An Account of the Application of Steam Power to the
Cultivation of the Land." Journal of the Royal Agricultural
Society of England, 1st Series, XX (1859).
- Cobb, F.W. Alfold; the Story of a Surrey Village. Privately
Printed: 1923.
- Cobbett, W. Rural Rides. London: 1830.
- Collins, E.J.T. and Jones, E.L. "Sectoral Advance in English
Agriculture, 1850-1880." Agricultural History Review, XV (1967).
- Coppock, J.T. "The Statistical Assessment of Agriculture."
Agricultural History Review, IV (1956).
- Coppock, J.T. "The Agricultural Returns as a Source for Local
History." Amateur Historian, III, No.10 (1958).
- Coppock, J.T. "The Parish as a Geographical-Statistical Unit."
Tidschrift voor Economisches und Sociale Geographie, LI (1960).

- Coppock, J.T. and Prince, H. Greater London. London:1964.
- Coppock, J.T. "The Cartographic Representation of British Agricultural Statistics." Geography, L.(1965).
- Cossons, A. "The Turnpike Roads of Nottinghamshire." Historical Association Leaflet, No.97 (1934).
- Cox, R.C.W. "The Railways that didn't come." Bourne Society, III (1964).
- Cox, E.A. and Dittmer, B.R. "The Tithe Files of the mid-Nineteenth Century." Agricultural History Review, XIII (1965).
- Cundall, H.M. Bygone Richmond. London: 1925.
- Darby, H.C. "The Draining of the English Claylands." Geographische Zeitschrift, LII (1964).
- Darlington, I and Howgego, J. Printed Maps of London, 1553-1850. London:1964.
- Defoe, D. A Tour through the Whole Island of Great Britain. 8th Ed., London:1778.
- Dendy-Marshall, C.F. A History of the Southern Railway. London:1936.
- Dewey, H. and Bromehead, C.E.N. "The Geology of the South Bank." Memoirs of the Geological Survey. London:1921.
- Dickens, C. Our Mutual Friend. London:1865.
- Dickinson, G.C. "Stage-coach Services in the West Riding of Yorkshire between 1830 and 1840." Journal of Transport History, IV (1959-60).
- Dunn, E.S. The Location of Agricultural Production. Gainesville: 1954.
- Dyos, E.J. "Railways and Housing in Victorian London." Journal of Transport History, II (1955-56).
- Dyos, H.J. "The Annals of Suburbia." Amateur Historian, IV, No.10 (1960).
- Dyos, H.J. Victorian Suburb: A Study of the Growth of Camberwell. Leicester:1961.
- Emmison, F.G. "Types of Open-Field Parishes in the Midlands." Historical Association Pamphlet, No.108 (1937).
- Evershed, H. "On the Farming of Surrey." Journal of the Royal Agricultural Society of England, 1st Series, XIV (1853).

- Evershed, H. "The Agriculture of Kent, Surrey and Sussex." Journal of the Bath and West of England Agricultural Society, 3rd Series, III (1871).
- Evershed, H. "Market Gardening." Journal of the Royal Agricultural Society of England, 2nd Series, VII (1871).
- Evershed, H. "The Early Fattening of Cattle, Especially in the Counties of Surrey and Sussex." Journal of the Royal Agricultural Society of England, 2nd Series, XIV (1878).
- Evershed, S. "On the Cropping and Cultivating of Light Land." Journal of the Royal Agricultural Society of England, 1st Series, XIV (1853).
- Faith, R. J. "Peasant Families and Inheritance Customs in Medieval England." Agricultural History Review, XIV (1966).
- Fletcher, J. "The Metropolis, its Boundaries, Extent and Divisions for Local Government," Journal of the Royal Statistical Society of London, VIII (1844).
- Fonblanque, A. W. "The Government Agricultural Returns for 1870." Journal of the Bath and West of England Agricultural Society, 3rd Series, III (1871).
- Foot, P. A General View of the Agriculture of Middlesex. London: 1794.
- Found, W. C. A Theoretical Approach to Rural Land-Use Patterns. London: 1971.
- Frost, T. Forty Years Recollections. Croydon: 1880.
- Fussell, G. E. "Home Counties Farming, 1840-1880." Economic Journal, LVII (1947).
- Fussell, G. E. "The Dawn of High Farming." Agricultural History, XXII (1948).
- Fussell, G. E. The English Rural Labourer. London: 1949.
- Fussell, G. E. The Farmer's Tools. London: 1952.
- Garnett, R. Richmond on Thames. Richmond: 1896.
- Gasson, R. "The Influence of Urbanisation upon Farm Ownership and Practice." Wye College, Department of Agricultural Economics Monographs. (1966).
- Gentlemen's Magazine Library. Collection of Chief Contents 1731-1868. English Topography, XII, Surrey and Sussex. London: 1900.

- Gonner, E.C.K. Common Land and Inclosure. London:1912.
- Gray, H.L. English Field Systems. Cambridge, Mass: 1915.
- Green, G.W.R. The Story of Wandsworth and Putney, London:1925.
- Gregor, H.F. Geography of Agriculture: Themes in Research.
Englewood Cliffs, New Jersey: 1970.
- Grigg, D.B. "The Development of Tenant Right in Lincolnshire."
Lincolnshire Historian, II, No.9. (1952).
- Grigg, D.B. "Changing Regional Values during the Agricultural
Revolution in South Lincolnshire." Transactions of the
Institute of British Geographers. No.30.(1962).
- Grigg, D.B. "An Index of Regional Change in English Farming."
Transactions of the Institute of British Geographers, No.36.(1965).
- Grigg, D.B. The Agricultural Revolution in South Lincolnshire.
Cambridge: 1966.
- Grotewald, A. "von Thunen in Retrospect." Economic Geography,
XXXV (1959).
- Grytzell, K.G. "County of London, Population Changes, 1801-1901."
Lund Studies in Geography, Series B, Human Geography, XXXIII(1969).
- Hall, A. and Russell, E.J. The Agriculture and Soils of Kent,
Surrey and Sussex. London:1911.
- Hall, P.(Ed). von Thunen's Isolated State. Oxford:1966.
- Harley, J.B. "Christopher Greenwood: County Map Maker."
Worcestershire Historical Society. (1962).
- Harley, J.B. "The Historian's Guide to the Ordnance Survey Maps."
Reprinted from the Amateur Historian. (1964).
- Harris, A. The Rural Landscape of the East Riding of Yorkshire
1700-1850. Oxford:1961.
- Harvey, D.W. "Theoretical Concepts and the Analysis of Agricultural
Land-Use Patterns in Geography." Annals of the Association
of American Geographers, LVI (1966).
- Harvey, J. "Great Bookham: a Short History."
Proceedings of the Leatherhead and District Local History
Society, II (1961).

- Haves, S. "Notes on the Wealden Clay of Sussex and its Cultivation." Journal of the Royal Agricultural Society of England, 1st Series, XIX (1858).
- Henderson, H.C.K. "Agriculture in England in 1801." Geographical Journal, CXVIII (1952).
- Hoover, E.M. The Location of Economic Activity. London:1948.
- Huxton, J. "On the Cultivation of Oats." Journal of the Royal Agricultural Society of England, 1st Series, XII (1851).
- H.M.S.O. "Census Records of Great Britain, 1801-1831." Guides to Official Sources, No.2. (1951).
- Hooper, W. "Reigate - its story Through the Ages." Surrey Archaeological Collections, Special Publication (1945).
- Hoskins, W.G. "Regional Farming in England." Agricultural History Review, II (1954).
- Hunt, H.G. "Agricultural Rent in South-Eastern England." Agricultural History Review, VII (1959).
- Hunt, H.W. "Some Notes on Coach Travel." Journal of Transport History, IV (1959-60).
- Hunter, H. A History of London and its Environs, London:1811.
- Isard, W. Location and Space-Economy. Cambridge, Mass:1956.
- James, W. and Malcolm, J. A General View of the Agriculture of Surrey. London: 1794.
- Jenkinson, H. "Guides to Archives - Surrey." Surrey Record Society, No.18 (1925).
- Johnson, H.B. "A Note on von Thunen's Circles." Annals of the Association of American Geographers, LII (1962).
- Jones, E.L. "The Changing Basis of English Agricultural Prosperity, 1853-1873." Agricultural History Review, X (1962).
- Jones, E.L. "English Farming Before and During the Nineteenth Century." Economic History Review, 2nd Series, XV (1962).
- Jones, E.L. Seasons and Prices. London: 1964.
- Jones, E.L. "Agriculture and Economic Growth in England." Journal of Economic History, XXV (1965).
- Jones, E.L. The Development of English Agriculture, 1815-1873. London:1968.

- Kerridge, E. "Agriculture, 1500-1793," in Victoria County History of Wiltshire, IV. London:1959.
- Kerridge, E. The Agricultural Revolution. London:1967.
- Kitson-Clark, G. "The Repeal of the Corn Laws and the Policies of the 1840's." Economic History Review, 2nd Series, IV (1951).
- Knight, J.H. Reminiscences of a Country Town. Farnham:1909.
- Lambert, H.C. A History of Banstead in Surrey. Oxford:1912.
- Lawton, R. "Population Changes in England and Wales in the Later Nineteenth Century: an Analysis by Registration Districts." Transactions of the Institute of British Geographers, No.44 (1968).
- Lee, C.E. "Early Railways in Surrey." Transactions of the Newcomen Society, XXI (1940-1941).
- Lee, C.E. "Sources of Bus History." Journal of Transport History, II, No.3.(1956).
- Lewis, S. Topographical Dictionary of England and Wales. London:1840.
- London County Council. "Parish of St. Mary Lambeth." in Survey of London, XXV, London: 1951.
- Lysons, D. The Environs of London. London:1792.
- Malcolm, J. A Compendium of Modern Husbandry Principally Written During a Survey of Surrey. London:1805.
- Malden, E.(Ed). The Victoria County History of Surrey, London:1912.
- Manning, O. and Bray, W. The History and Antiquities of the County of Surrey. London:1804-1814.
- Marshall, W. Minutes of Agriculture made on a Farm near Croydon, Surrey. London:1778.
- Mayhew, H. London Labour and the London Poor. London:1861-62.
- Middleton, J. A General View of the Agriculture of Middlesex. London:1811.
- Minchington, W.E. "The Agricultural Returns and the Government during the Napoleonic Wars." Agricultural History Review, I (1953).

- Mitchell, B.R. Abstract of British Historical Statistics.
Cambridge: 1962.
- Mitchison, R. "The Old Board of Agriculture, 1793-1822."
English Historical Review, LXXIV (1959).
- Moore, J.S. "The Evolution of the Wealden Landscape."
University of Leicester, Occasional Papers in Local History,
No.19 (1965).
- Moore, J.A. and Scott-Watson, J.A. Agriculture - the Science
and Practice of British Farming. 10th Ed., London:1956.
- Morrill, R.L. The Spatial Organization of Society, California:
1970.
- Morgan, W.H. and Munton, R.J.C. Agricultural Geography.
London:1971.
- Oliver, J.L. "Directories and their use in Geographical
Enquiry." Geography, XLIX (1964).
- Orwin, C.S. and C. The Open Fields, Oxford:1958.
- Pahl, R.E. "Urbs in Rure - the Metropolitan Fringe in
Hertfordshire." London School of Economics, Geographical
Papers, No.2. (1965).
- Parry-Lewis, J. Building Cycles and Britain's Growth.
London:1965.
- Pelham, R. "The 1801 Crop Returns for Staffordshire in their
Geographical Setting." Collections for a History of
Staffordshire, (1950-1951).
- Pigot and Co., Directory of Middlesex, Surrey and Sussex.
London:1822.
- Pigot and Co., Royal, National and Commercial Directory of
Surrey, London:1839.
- Post Office. Surrey Directory. London:1870.
- Post Office. London, Suburban Directory. London:1872.
- Presnell, L.S. Studies in the Industrial Revolution.
London:1960.
- Prince, H.C. "The Tithe Surveys of the mid-Nineteenth Century."
Agricultural History Review, VII (1959).
- Prothero, R.E. English Farming, Past and Present. London:1912.

- Ramsey, S. Historic Battersea. London:1913.
- Rew, R.H. "An Enquiry into the Statistics of the Production and Consumption of Milk and Milk Products in Great Britain." Journal of the Royal Statistical Society. XIV (1892).
- Ricardo, D. "On the Principles of Political Economy and Taxation," Ed., P. Straffa, in The Works and Correspondence of David Ricardo. Cambridge:1951.
- Richards, F. Sutton, Surrey and its Surroundings, London:1906.
- Robinson, D.J. and Cooke, R. "Lime Kilns in Surrey: a Reconstruction of a Rural Industry," Surrey Archaeological Collections, LX (1962).
- Rose, C.M. Nineteenth Century Mortlake and East Sheen. Privately Published:1961.
- Ross, K.N. A History of Malden. New Malden:1947.
- Sayers, W.C.B. The Story of Croydon. Croydon:1925.
- Sekon, G.A. Locomotion in Victorian London. Oxford:1938.
- Sewell, R. and Lane, E. The Freemen of Charlwood. 1951.
- Shannon, H.A. "Migration and the Growth of London." Economic History Review, V (1935).
- Sinclair, R. "von Thunen and Urban Sprawl." Annals of the Association of American Geographers, XLVII (1967).
- Skeel, C. "The Cattle Trade between England and Wales." Transactions of the Royal Historical Society, 1st Series, LX (1926).
- Slater, G. The English Peasantry and the Enclosure of the Common Fields. London:1907.
- Smith, C.T. "The Movement of Population in England and Wales in 1851 and 1861," Geographical Journal, CXVIII (1951).
- Smith, R.P. "Notes on the History of Sutton." Surrey Archaeological Collections. LIX (1952).
- Stevenson, W. A General View of the Agriculture of Surrey. London:1809.
- Sturgess, R.W. "The Agricultural Revolution on the English Clays." Agricultural History Review, XIV (1966).
- Sturgess, R.W. "The Agricultural Revolution on the English Clays. a Rejoinder," Agricultural History Review, XV (1967).

- Summerson, J. Georgian London. London:1945.
- Surtees, R.S. Ask Mamma. London:1854.
- Tansley, A.G. Britain's Green Mantle. 2nd Ed., London:1968.
- Tate, W.E. "Enclosure Acts and Awards Relating to Lands in the
County of Surrey." Surrey Archaeological Collections,
XLVIII (1942-1943).
- Tate, W.E. "Short Guides to Records - Enclosure." History,
LI, No.172 (1966).
- Taylor, J.G. Our Lady of Battersea. London:1925.
- Temple, N. Farnham Inheritance. Farnham:1965.
- Thirsk, J. "The Origin of the Common Fields." Past and
Present, XXXIII (1966).
- Thomas, D. Agriculture in Wales during the Napoleonic Wars.
London:1963.
- Thompson, F.M.L. "Agriculture in the Nineteenth Century."
History, XLVIII (1963).
- Thompson, F.M.L. English Landed Society in the Nineteenth Century.
London:1963.
- Thompson, F.M.L. "The Second Agricultural Revolution. 1815-1880."
Economic History Review, XXI (1968).
- Thompson, H.S. "Agricultural Progress and the Royal Agricultural
Society." Journal of the Royal Agricultural Society of England,
1st Series, XXV (1864).
- Timms, D. "Quantitative Techniques in Urban Social Geography,"
in Frontiers in Geographical Teaching, ed., by R.J.Chorley
and P.Haggett. London:1965.
- Titow, J.Z. "Medieval England and the Open-Field System."
Past and Present, XXXII (1965).
- Tooke, T. A History of Prices. London:1857.
- Topley, W. "On the Comparative Agriculture of England and Wales."
Journal of the Royal Agricultural Society of England,
2nd Series, VIII (1872).
- Trow-Smith, R. A History of British Livestock Husbandry,
1700-1900. London:1959.

Universal British Directory of Trade, Commerce and Manufacture.

London:1791-1798.

- Walker, T.E.C. "Cobham Manorial History." Surrey Archaeological Collections, LVIII (1961).
- Weaver, J.C. "Crop Combination Regions in the Middle-West." Geographical Review, XLIV (1954).
- Weaver, J.C. "Changing Patterns of Cropland use in the Middle-West." Economic Geography, XXX, No.1. (1954).
- Wheeler, A.L. The Cradle of a Great Corporation. Croydon: 1934.
- Whetham, E.H. "Sectoral Advance in English Agriculture, 1850-1880, a Summary." Agricultural History Review, XVI (1968).
- White, H.P. A Regional History of the Railways of Great Britain, Vol.II, Southern England: Vol.III Greater London. London:1968.
- Wibberley, G.P. Agriculture and Urban Growth. London:1959.
- Yates, E.M. "The Vegetation of Blackdown, Sussex." Geography, XL (1955).
- Yates, E.M. "A Study of Settlement Patterns." Field Studies, 1, No.3. (1961).
- Young, A.(Ed). The Annals of Agriculture, 1788-1801.